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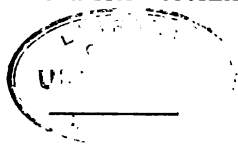
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REPORT
OF THE
U. S.
INDUSTRIAL COMMISSION
ON
AGRICULTURE
AND ON
TAXATION IN VARIOUS STATES

(SECOND VOLUME ON AGRICULTURE),

INCLUDING

SPECIAL REPORTS AND SUMMARIES RELATING TO FICTITIOUS SALES
OF FARM PRODUCTS, THE TOBACCO TRADE, AMERICAN FARM
LABOR, LAWS REGARDING AGRICULTURAL BOARDS,
WAREHOUSE AND ELEVATOR LAWS, ADUL-
TERATION OF FOOD PRODUCTS,
AND TAXATION SYSTEMS.



VOLUME XI
OF THE COMMISSION'S REPORTS.

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1901.

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E. DANA DURAND, *Secretary.*

[Extract from act of Congress of June 18, 1898, defining the duties of the Industrial Commission and showing the scope of its inquiries.]

SEC. 2. That it shall be the duty of this commission to investigate questions pertaining to immigration, to labor, to agriculture, to manufacturing, and to business, and to report to Congress and to suggest such legislation as it may deem best upon these subjects.

SEC. 3. That it shall furnish such information and suggest such laws as may be made a basis for uniform legislation by the various States of the Union, in order to harmonize conflicting interests and to be equitable to the laborer, the employer, the producer, and the consumer.

030 12-15-14
INDUSTRIAL COMMISSION,
December 5, 1901.

To the Fifty-seventh Congress:

I have the honor to transmit herewith, on behalf of the Industrial Commission, a report relating to Agriculture and to Taxation, especially as regards corporations, prepared in accordance with an act of Congress approved June 18, 1898. The testimony on the general subject of agriculture is included in Volume X of the Commission's reports. This volume consists of special investigations and summaries of existing laws and court decisions.

The conclusions and recommendations of the Commission on the subjects covered by this volume will be presented in its Final Report to Congress.

Respectfully,

ALBERT CLARKE, *Chairman.*

III

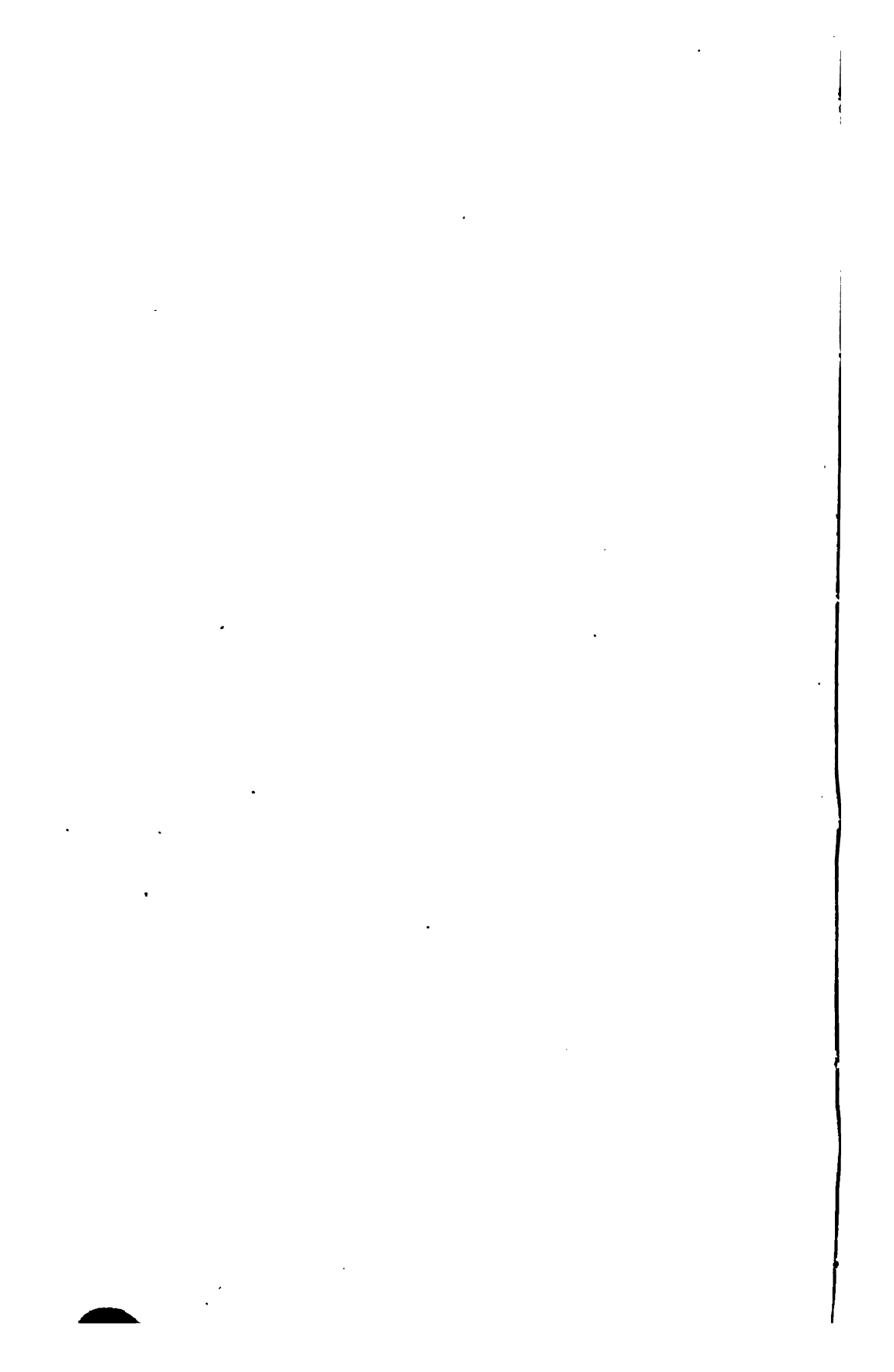


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PART I.

FICTITIOUS DEALINGS IN FARM PRODUCTS.

SYNOPSIS OF TESTIMONY TAKEN BY COMMITTEES OF CONGRESS, AND OF DEBATES IN BOTH HOUSES ON THE SUBJECT.

Prepared under the direction of the Industrial Commission by HARVEY M. FRIEND.

To the Industrial Commission:

Pursuant to the resolution of your honorable body, dated June 10, 1899, appointing me an "expert agent" to make a digest of certain bills of the Fifty-second Congress, together with amendments adopted and proposed, and certain testimony taken by committees of the House and Senate of that Congress in the matter of "fictitious dealings in agricultural products," I have the honor to submit the following report:

The subject-matter under consideration had engrossed the attention of the agricultural, milling, and some of the manufacturing and commercial interests of the country for a number of years prior to the assembling of the Fifty-second Congress, but until that Congress no serious attempt had been made to enact general legislation the avowed purpose of which was to suppress such dealings. The continuous decline in the value of farm products generally, and especially of some of the leading staples, such as wheat, corn, and cotton, during practically the entire period of about 20 years, commencing in the early seventies, had caused great disaster in many quarters, and had given rise to a belief, pretty generally prevailing among the producers of the country, that one of the prime causes of this general depression in the prices of their products was what is commonly known as dealing in "options" and "futures" on the boards of trade of Chicago, New York, and New Orleans, and some other cities where such dealings were carried on to a lesser extent.

It was claimed that, regardless of the law of supply and demand, the prices of all the products of the farm which were dealt in on these boards of trade were fixed absolutely by manipulations in the interest of the speculators and to the detriment of the producers, and that such lowering of the prices of those products had a necessary tendency to depress the prices of all other products of the farm. This line of argument carried one step farther logically led to the conclusion that this same cause was the predominant one in lowering the price of land during the same period.

It was further contended that this practice of fictitious dealing in agricultural products had ruined the market for actual products of the soil by diverting large sums of money from the channels of legitimate trade and business to the baser uses of purely gaming transactions, and it was asserted with much vigor and emphasis that such practices were undermining the morality of the country, were making gamblers out of the men of business, were the fruitful causes of a large majority of the failures in business, embezzlements, and other large financial crimes, and were a serious menace to the State.

Petitions had gone up to the legislatures of the States in which such transactions were carried on praying the enactment of laws to prohibit them, and Illinois,

at least, had already passed a pretty stringent statute to that end, which, it was apparent, had had little, if any, effect toward accomplishing the desired result. The subject-matter was believed by the opponents of "options" and "futures" to be too vast and too closely interwoven with the general business interests of the whole country for the States in their individual capacity to successfully grapple with it, and the sentiment in certain quarters that these "options" and "futures" dealings on the boards of trade were fraught with nothing but evil to the producing classes was very strong. Hence, it was, that appeals had begun to come up to Congress for a general statute to suppress those dealings. A bill had been introduced in the Fifty-first Congress by Representative Butterworth, of Ohio, which sought to accomplish this result by the exercise of the taxing power of the General Government, but nothing had come of it.

The question was thus ripe for consideration when the Fifty-second Congress assembled in regular session in December, 1891. Both Houses were at once deluged with petitions and memorials from private citizens, agricultural associations, and many other bodies interested in the subject, including memorials from the legislatures of some of the States, the majority of them asking legislation on the lines of the Butterworth bill. The memorials of the boards of trade, chambers of commerce, banking and other kindred commercial interests of the country, were, as a rule, opposed to such legislation.

By the middle of February, 1892, 5 "anti-option" bills had been introduced in the House, and 3 in the Senate. The several House bills were numbered 394, 479, 2699, 3870, and 6012, and were introduced by Messrs. Brosius, Wise, Hatch, Alexander, and Hatch (by request), respectively. All of them sought to suppress "fictitious dealings in agricultural products" on the boards of trade by taxing them out of existence.

In the Senate Mr. Washburn introduced 2 bills, numbered 685 and 1757, respectively, drawn on substantially the same lines, and Mr. Peffer introduced a bill, No. 1268, which declared such dealings impediments of interstate commerce and felonies punishable by imprisonment in the penitentiary for a period of not less than 2 years or more than 10, the U. S. district courts being given jurisdiction over such offenses.

The House bills were referred to the Committee on Agriculture, which almost immediately began a series of hearings lasting from February 3 until February 16, at which a large amount of testimony was taken both for and against the proposed legislation. The testimony was, of necessity, almost wholly of an expert nature. The witnesses were asked to state their views at length on the general subject and to make suggestions as to whether legislation was necessary in the premises; and if so, to state what, in their opinion, such legislation should be. An abstract or digest of the material portions of that testimony will be found in Appendix A.

At the same time the committee solicited correspondence from persons, associations, organizations, and others interested and conversant with the general subject-matter under investigation and received a number of replies, most of which were printed along with the testimony.

The substance of those replies was substantially to the same effect as the testimony taken before the committee, those favoring the bill doing so on practically the same grounds as did those who appeared before the committee, and the same being true in respect of those opposing the proposed measure. It is not deemed essential therefore to make a separate digest thereof.

On the 4th of April, 1892, the committee reported a bill (H. R. 7845), as a substitute for the bills formerly introduced. The report of the committee (No. 969, Fifty-second Congress, first session), set out the objects sought to be accomplished by the enactment of this bill into a law, explained in detail the several sections of the bill, and argued strenuously in support of it, quoting liberally from newspapers and other sources that favored legislation of the character proposed.

The title of the new bill was: "A bill defining 'options' and 'futures,' imposing special taxes on dealers therein, and requiring such dealers and persons engaged in selling certain products to obtain license, and for other purposes."

The objects sought by the proposed legislation were stated by the committee to be as follows:

"First. To obtain revenue.

"Second. To relieve the producer of the destructive competition to which he is now subjected by the offering, upon the exchanges, of illimitable quantities of flat or fictitious products by those who do not own and have not acquired the right to the future possession of the articles which they pretend to offer and sell.

"Third. To restore to the law of supply and demand that free action which has been destroyed by the practice of 'short selling,' which practice has of recent years become the one mode of determining the price of such agricultural staples as can be graded, while the ordinary methods of commerce are found to suffice for those which can not. By the practice of 'short selling,' now so common upon the

exchanges, where not to exceed one-tenth of the grain grown is marketed, prices are determined for the entire product and often months in advance of the sowing of the seed (this is especially true of the staple product of the Southern plantations), thus despoiling the farmer and planter of that voice in fixing the price to be received for the product of his labor and capital which is accorded to other producers.

"Fourth. That market quotations, now made by the limitless offers of fiat products by the 'short sellers,' regardless of the value of or the volume of actual product in existence, may again be determined by the offering of real product by the owners thereof or by those who have acquired from such owner the right to the future possession of the articles offered, and thereby to limit to the amount actually existent the offerings of the staple products of the farm.

"Fifth. To prevent the overloading of domestic markets and the breaking down of prices of farm products by 'short sales' made by foreign merchants for the purpose of insuring them against possible loss on purchases of Indian, Egyptian, South American, Australian, and Russian produce, whereby the American farmer and planters are made underwriters of the commercial risks of the European, by whom no bonus or premium is paid for assuming insurance risks that destroy much of the value of our products.

"Sixth. That by restoring the functions of the law of supply and demand, now inoperative by reason of the limitless offers of the 'short-seller,' a measure of relief will be given and prosperity partially restored to that great class constituting more than 40 per cent of our population who inhabit the farms, and whose lacking prosperity, your committee believe, is due, in no considerable part, to the practice of 'short selling,' whereby the prices of the products of the farm have been determined and fixed, during recent years, at an unremunerative level.

"Seventh. To restore to the producer an honest market and such prices as will follow the unfettered operation of the law of supply and demand which the committee believe will be sufficiently remunerative to restore, in part, the power of the farmer and planter to purchase the product of forge, factory, and mill, and thus bring prosperity to the artisan, manufacturer, distributor, and transporter."

The first section of the bill defined "options" as "any contract or agreement whereby a party thereto, or any party for whom or in whose behalf such contract or agreement is made, acquires the right or privilege, but is not thereby obligated, to deliver to another or others, at a future time or within a designated period, any of the articles mentioned in section 3," those articles being the following:

"Raw or unmanufactured cotton, hops, wheat, corn, oats, rye, barley, grass seeds, flaxseed, pork, lard, bacon, and other edible product of swine."

The second section defined "futures" as "any contract or agreement whereby a party contracts or agrees to sell and deliver to another or others, at a future time or within a designated period, any of the articles mentioned in section 3 of the act, when at the time of making such contract or agreement the party so contracting or agreeing to sell and make such delivery, or the party for whom he acts as agent, broker, or employee in making such contract or agreement, is not the owner of the article or articles so contracted or agreed to be sold and delivered, or has not theretofore acquired by purchase, and is not then entitled to the right to the future possession of such article or articles under and by virtue of a contract or agreement for the sale and future delivery thereof previously made by the owner thereof."

It was provided, however, that the act should not apply to contracts with Federal, State, or municipal authorities, nor to contracts made by any farmer or planter for the future delivery of the products of the land, either grown or growing, nor to any contracts to furnish any farmer or planter with any of the articles named in the bill which he might require for food, forage, or seed.

Section 4 defined a dealer in "options" as follows: "Every person, association, copartnership, or corporation who shall, in their own behalf or as agent, broker, or employee of another or others, deal in 'options' or make any options contract or agreement, as hereinbefore defined, or make any transfer or assignment of any such 'futures' ('options' meant) contract or agreement;" and a dealer in "futures" was defined in the same language, except in this definition the word "futures" was used instead of "options" in the definition of the former class of dealers.

This section then provided that such dealers should pay an annual license fee of \$1,000, and also pay a tax of 5 cents on each pound of cotton, hops, pork, lard, bacon, and other edible product of swine, and 20 cents a bushel on each bushel of the other articles named in section 3 which were the subject of any "options" or "futures" contract which he, as vendor or assignor, should make, transfer, or assign, either in his own behalf or on behalf of others.

Section 5 required every dealer in "options" or "futures" to apply, in form and manner prescribed, to the collector of internal revenue for his license and pay the

fee of \$1,000, and at the same time to execute a bond in the sum of \$40,000, to secure the payment of the taxes provided in section 4 and his compliance with all the requirements of the act. This section further provided that such dealer should not transact any business in "options" or "futures," while any of the taxes provided in section 4 remained unpaid, although he might have a license in his possession to do such business.

Section 6 required the collector of internal revenue to keep a register subject to personal inspection, in which should be recorded all applications for license under the act and a statement as to whether a license had been issued thereon.

Section 7 provided that all "options" and "futures" contracts and agreements, and all transfers and assignments thereof, should be in writing and signed in duplicate, and state the time at which they would expire or mature.

Section 8 required every dealer in "options" or "futures" to keep a book in which should be recorded the date of any "options" or "futures" contract made by him; the names of the parties thereto, whether they appeared as vendor or vendee; the kind and amount of the articles agreed to be sold; the contract time of delivery; and if there should be a transfer or assignment of the contract, the name of the assignee and assignor; which book was at all times to be open to inspection by the officials of the Internal Revenue Department.

Section 9 required dealers in "options" and "futures" to make weekly reports to the collector of internal revenue, setting forth the facts and items required by section 8 to be recorded, and thereupon pay the taxes provided in section 4 upon the business transacted in the preceding week.

The collector was then required to enter such report in a public register, and make monthly reports to the Commissioner of Internal Revenue of the business transacted in this line.

Section 10 imposed a penalty of \$20,000 fine, or imprisonment from six months to ten years, or both, upon dealers in "options" or "futures," for a violation of any of the provisions of the act in respect of the license fee, or taxes, or for making false and fraudulent returns to the collector.

Section 11 provided that neither the payment of the taxes nor the procuring of a license should exempt such dealers from the operation of the State, Territorial, or municipal enactments relating to the same subject-matter.

Section 12 required any party, whether as owner or as having acquired the right to the future possession of any of the articles mentioned in section 3, intending to make, transfer, or assign contracts for the sale and subsequent delivery of any of such articles, to procure a license therefor from the collector of internal revenue, paying \$2 annually for the same. Such party was also required to keep the same kinds of records and make the same reports as were required of the regular dealers in "options" and "futures," and for violating this section was subject to a fine of not less than \$1,000 nor more than \$5,000.

Section 13 provided that whenever the making of any contract for the sale and future delivery of any of the articles named in section 3 should not be reported as required, or if it should come to the knowledge of the collector, or if he should have reasonable cause to believe that, at the time of making, transferring, or assigning any contract for the sale and subsequent delivery of any of such articles, the party making, transferring, or assigning thereof was not the owner of or not then entitled to the future possession of the article or articles contracted to be sold and delivered, it should be the duty of the collector to demand from such vendor or assignor proof of such ownership or right to the future possession of such property; and if proof should not be furnished upon demand, then such contract should be held to be a "futures" contract, as defined in section 2, and should subject the maker thereof, unless he should have a license covering the period of the transaction, to the payment of the \$1,000 license fee, and also the taxes provided in section 4, as well as the fines and penalties provided in section 10.

Section 14 extended and applied all provisions of existing internal-revenue laws relating to the recovery and enforcement of taxes, fines, and penalties, so far as applicable, to the recovery and enforcement of the taxes, fines, and penalties imposed by this bill.

Section 15 required the Commissioner of Internal Revenue to prescribe rules and regulations to carry the act into effect; and, when approved by the Secretary of the Treasury, such rules and regulations were to have the "force and effect of law."

On the 6th of June, 1892, on motion of Mr. Hatch, the bill passed the House, under a suspension of the rules, by a vote of 167 to 46; 116 members not voting. Under the rules of the House, but 30 minutes for debate was permissible, 15 minutes to a side. In this short debate, 7 members spoke for the bill and 12 against it.

The essential points made in the argument in favor of the bill may be summarized as follows:

1. Such legislation was demanded generally by the agricultural interests of the country.

2. This legislation would destroy gambling in agricultural products, which, in itself, is pernicious on general principles, and is a swindling of the farmers and planters and other agricultural interests.

3. It would enhance the value of agricultural products, and would thus benefit the whole country, and would at the same time restore to trade and business the free and uninterrupted exercise of the law of supply and demand.

The opponents of the measure made the following points against it:

1. The bill was unconstitutional, because not warranted under the exercise of the taxing power of the Constitution.

2. It was also unconstitutional, because it was violative of the rights of the States to control their own domestic affairs. If the practices condemned were pernicious as alleged, then they were against the States in which they took place, and the guilty parties should be amenable to the States and to them alone.

3. The bill interfered with the liberty of contract.

4. It was a sham proposition to raise revenue, the object being to prohibit and not to tax the business; and it was, therefore, a prostitution of the taxing power for purposes not contemplated in the Constitution.

5. It would destroy legitimate commerce and export trade, and would depreciate the value of farm products instead of enhancing them.

6. It was a bill in the interest of a syndicate of milling interests, and its passage would result in the formation of a gigantic millers' trust which would control the price of the entire production of the cereals at its own pleasure.

Replying to the constitutional objections urged against the bill, those favoring its enactment cited the statute taxing the production of oleomargarine, and the act relating to the Louisiana Lottery, and contended that those acts were sufficient precedents for the proposed legislation; and they also asserted that every pernicious practice that had ever become general, and every universal evil in the history of the country had used the same arguments and had sought to shield itself from interference and interruption behind the Constitution.

The bill reached the Senate on the 9th of June, and was ordered to be printed and lie on the table. On the 16th of the same month, after a short debate, it was referred to the Committee on the Judiciary, which in the meantime, as before stated, had taken a large amount of testimony on the subject-matter of the bill.

On the 7th of July Mr. Platt, representing a majority of the committee, reported the bill back without recommendation, except that it be placed on the Calendar for early consideration, and said that while the committee believed that dealing in agricultural products by persons not having the ownership or the right to the ownership thereof constitutes a great evil and injury which ought to be remedied, if there was any power under the Constitution to remedy the same, they had been unable to agree upon any measure of relief.

Messrs. George, Pugh, and Coke, representing a minority of the committee, joined in a report, which, in substance, was that they believed that it was a perversion of the taxing power of the Constitution to use it for the purposes of the bill, but that they believed Congress has full power, under the commerce clause of the Constitution, to prohibit such dealings as being impediments of interstate and foreign commerce. They therefore reported a measure on these lines, an analysis of which will be made further on in this report.

Mr. Mitchell, a member of the committee, submitted a brief report embodying his individual views on the subject, to the effect that Congress could suppress fictitious dealings in agricultural products on the boards of trade either by the exercise of the taxing power, or by an exercise of the power conferred by the commerce clause of the Constitution, and with certain minor amendments to the bill he favored its passage.

The amendments referred to by Mr. Mitchell had been previously brought to the attention of the Senate by Mr. Washburn, and were subsequently adopted by the Senate as in committee of the whole, without opposition. They were in substance as follows:

1. In section 4 the definitions of dealers in "options" and "futures," respectively, were enlarged so as to embrace any one who should, "by letter, telegram, or other communication sent from the United States to any foreign country, or by an agent, broker, employee, or partner resident in any foreign country enter into any 'options' or 'futures' contract" as before defined.

2. In section 2 the following additional future contracts of the farmer or planter were excepted from the operation of the act: "Any contract made with any person to furnish and deliver at a future time or within a designated period any of such articles purchased for the domestic consumption of the purchaser or his household."

3. The words "grass seeds," "flaxseed," and "other edible products of swine" were stricken from section 3.

4. Section 13 was amended so that its provisions did not, in any respect, apply to the transfer or assignment of any "option" or "futures" contract.

5. Section 13 was further amended so that the penal provisions of section 10 should not apply to the transactions regulated by the first-named section.

6. At the end of section 2 a proviso was inserted that none of the farmers' or planters' future contracts excepted from the operations of the act should be made or settled in any manner upon any board of trade or produce exchange of any kind, or in any place, or upon any premises where price quotations of the articles contracted for was announced or bulletined, nor should they be subject to the rules and regulations of any such board or exchange.

Certain other purely clerical amendments were also adopted without opposition.

The debate in the Senate on this bill was of the most animated character and was protracted to a great length. Perhaps no measure was ever more thoroughly discussed in Congress. It was advocated with singular ability on substantially the same grounds as in the House, and was opposed in a masterly manner principally on the grounds of its alleged unconstitutionality, its alleged interference with legitimate trade and business, and on the further ground that, even admitting that dealing in "options" or in "puts" and "calls" was pernicious in itself, they did not affect legitimate transactions or interfere with the natural operations of the law of supply and demand. Another argument that was pressed with great vigor by the opponents of the bill was that dealings in "futures" were the legitimate outgrowth of the rapid advancements of commercial and industrial affairs and were made necessary by the commercial and industrial revolution that had been wrought by the mighty agencies of steam and electricity, and the inventive genius of man, and that boards of trade and commercial exchanges were the clearing houses for the products of the farm and were just as essential to the stability of prices and the successful and rapid distribution of those products as were the great clearing houses of finance for the successful transactions of business purely financial.

The debate began on July 11 and continued until July 30, near the close of the first session of Congress, several hours of most of the legislative days being devoted to it. It was resumed December 12, shortly after the second session convened and was not concluded until January 31, on which day the bill as amended passed the Senate by a vote of 40 to 29, 16 not voting.

An analysis or digest of this debate will be found in Appendix B.

In the course of the debate numerous amendments other than those before referred to were offered, nearly all of which were voted down. A number of proposed amendments of minor importance were not discussed, and some of them were not acted upon, and they will not be specially considered. A mere statement of them will be sufficient. Those of this class were substantially as follows:

1. (By Mr. WASHBURN.) Insert at the end of section 11 a provision that every "option" or "future" contract as defined in the bill, when made outside the jurisdiction of the United States should be null and void when attempted to be enforced in court of the United States.

2 and 3. (By Mr. JONES, of Arkansas.) In section 2, except from the operation of the act the following future contracts:

(a) "Any agreement to pay or deliver a part of the product of land as compensation for its use, or as compensation for work or labor done or to be done on the same." Adopted.

(b) "Any agreement made with a manufacturer to deliver to him at a future time raw material of the particular kind, grade, or quality required to be used in his business, if such agreement be not made in any merchants' exchange or other association, nor to be subject to the rules and regulations thereof, and shall be for a bona fide delivery of such raw material of the kind, grade, and quality named in such agreement." Not pressed.

4. (By Mr. GIBSON, of Louisiana.) In section 2, except from the operations of the act the following "futures" contract.

"Any contract or agreement in writing by any person actually to receive and pay for any of the articles to which the bill relates at a specified future time, where there was an actual bona fide sale." Not pressed.

5. (By the same.) In section 3, insert the following articles to be subject to the operations of the act:

"Flour, tobacco, beef, cattle, sheep, mules, horses, lumber, building material, silver, gold, iron, copper, coal, lime, oil, lead, stocks and bonds of any description whatsoever, wool and woolen goods, cotton goods, silk and silk goods, leather, leather goods, cotton-seed products, and all other articles, raw or manufactured, that are the subjects of barter or trade and commerce among the people of the United States, or between them and the people of foreign countries." Not pressed.

6. On motion of Mr. Washburn the original section 12 was stricken from the bill. Afterwards a shifting of the last few sections was made, section 13 becoming section 10; section 10 became section 11; section 11 became section 12; section

14 became section 13; section 15 became section 14; and a new section numbered 15 was added providing that the act should go into effect on July 1, 1893.

7. On motion of Mr. White the item of "flour" was added to the articles mentioned in section 3 to which the act should relate.

8. Mr. White moved to strike out the proviso to section 2 above referred to, which forbade any of the farmers' or planters' future contracts that were excepted from the act to be made in or upon any board of trade or other such like association or in accordance with any of the rules of such bodies; but after a short debate thereon the motion was lost by the vote of 15 to 32, 39 not voting.

9. (By Mr. VILAS.) Restricting the definition of a "future" contract in section 2, so that there should be excluded therefrom all contracts in which the seller in good faith intended "to purchase and deliver the articles contracted to be sold and delivered according to the terms and requirements of such contract." Rejected by a decisive vote after a lengthy debate.

10. (By Mr. DANIEL.) Strike out section 10, formerly section 13. Rejected after a lengthy debate by a large majority.

11. (By Mr. MILLS.) After section 14 insert a new section as follows:

"That all railroad corporations, associations, or companies engaged in interstate commerce shall, within six months after the passage of this act, provide at all stations established or that may be established on their roads, side-track facilities for all persons or parties to erect and maintain private elevators or warehouses, of a capacity of not less than five thousand bushels each, for the storage of grain while waiting shipment on such lines of railroad, and permit such elevators and warehouses to be erected, maintained, controlled, and operated by any person or corporation desiring to erect, maintain, control, and operate the same for said persons. And it is hereby made the duty of said railroad companies to receive and carry over their lines all grain offered for shipment to and from such private elevators and warehouses, and they shall receive in their cars and carry over their lines of railroad all grain offered in carload lots at such stations without previous storage, and shall transport the same at the same rates charged for transporting grain for elevator and miller companies. And every railroad company that shall fail or refuse to comply with the provisions of this section shall be guilty of a misdemeanor, and on conviction shall be fined the sum of ten thousand dollars for each offense." Rejected without debate, 21 to 46, 21 not voting.

12. (By Mr. MILLS.) After section 14 insert a new section as follows:

"Any person, corporation, or company which shall enter into any combination or agreement to fix the price at which grain or cotton or other agricultural product shall be bought in any market in the United States, or to prevent competition in the sale and purchase of grain or cotton or other agricultural product in any market in the United States, shall be guilty of a misdemeanor, and, on conviction, shall be fined the sum of ten thousand dollars for each offense so committed."

This was also rejected, without debate, by a vote of 26 to 40, 22 not voting.

13. (By Mr. CARTER.) In addition to the articles mentioned in section 3, to which the bill was to apply, insert "silver bullion." This was rejected by a large majority.

14. (By Mr. WALCOTT.) In section 3 add the following articles to which the bill should relate: "Petroleum or any of the products of petroleum, or certificates representing the same and dealt in on the exchanges of the United States; also high wines, spirits, and whiskies." Rejected.

15. The proposed amendment which provoked the most discussion and was by far the most important one offered emanated from Senator George, and was generally called the "George substitute." This amendment went to the very foundations of the bill itself, and proceeded upon an entirely different principle, while seeking to accomplish the same purposes as did the original bill. Whereas the original bill relied upon the taxing power of the Constitution as the source of its authority, the George substitute was based upon the commerce clause of the Constitution.

Its first three sections were the same as the corresponding sections of the original bill.

Its fourth section declared that "options" and "futures," as thereinbefore defined, were obstructions to and restraints upon interstate and foreign commerce, and were, therefore, illegal and void; that every party to such contract, either as buyer or seller, should be guilty of a misdemeanor, triable in the proper district or circuit court of the United States, and punishable by a fine of the full value of the contract if that amounted to \$1,000, or \$1,000 when the value of the contract was less than that sum, and imprisonment for not less than one year nor more than five; and that every such contract should constitute a separate offense on the part of both parties thereto.

Section 5 declared any exchange, board or other association where "options" or "futures" contracts were made, encouraged, settled, regulated or adjusted to be

unlawful combinations to obstruct interstate and foreign commerce, which might be proceeded against by injunction, in the proper district or circuit court of the United States, at the suit of the General Government, brought by the district attorney or the Attorney-General, or by any private party on relation of the United States, whenever there was reasonable ground to suspect a violation of the statute on the part of any such exchange, board, or other association; and when such suit was brought at the instance of a private party and was successful, the court should adjudge to the relator full costs and attorneys' fees, together with reasonable compensation for his time spent and expenses incurred in and about such suit.

Section 6 was as follows:

"That any person who shall in the United States by letter or telegram or other communication sent from the United States to any foreign country, or by any agent resident in a foreign country enter into any contract hereinbefore described as 'options' or 'futures,' or who shall do any other act aiding and encouraging the making of such contract in any foreign country, or shall in the United States perform any such contract or pay any damages for nonperformance or do any act in part performance of such contract or in part satisfaction of such damages shall be deemed guilty of a misdemeanor, and be triable and punishable as provided for in section 4 of this act."

Section 7 declared that any "options" or "futures" contract made outside of the jurisdiction of the United States should be held utterly null and void when attempted to be enforced in any court of the United States.

Section 8 was as follows:

"That when any money or other valuable thing has been paid or delivered on any contract herein prohibited, or in satisfaction of any damages or any part of the damages claimed from a breach of any such contract, the title to such money or other valuable thing shall be held as not having been passed by such delivery or payment, and the same may be recovered back in the proper district or circuit court of the United States at the suit of the party making such delivery or payment, or by his legal representatives if he be dead, and shall be subject to his creditors as his other property; and there shall be no defense against any such proceedings by a creditor to subject said money or property to his debt, arising out of any transaction between the parties to such payment or delivery, except the actual and bona fide return of the money paid or thing delivered before such proceedings had been commenced."

The title of the bill was amended so as to read: "An act to encourage and promote commerce among the States and with foreign nations, and to remove obstructions thereto."

The debate on this substitute was carried on with great vigor for many days. It was ably championed by its author and other Senators who, while they favored legislation suppressing dealings in "options" and "futures," opposed the original bill on constitutional grounds, as being an unwarranted and unauthorized exercise of the taxing power. The arguments used against it were substantially those that were used against the original bill. It was attacked with great ability and learning as unconstitutional, and was declared to be without principle or precedent in its favor.

A digest of the debate on this substitute will be found in its proper place in the digest of the whole debate in Appendix "B."

Mr. Vilas offered an amendment to the fourth section of the George substitute, striking out the first part of the section which declared "options" and "futures" obstructions to interstate and foreign commerce and to be illegal and void, his contention being that the judicial department of the Government, and not Congress, was the proper tribunal to determine what are obstructions to and restraints upon interstate and foreign commerce. The proposed amendment, however, was rejected by a large majority; and afterwards the George substitute met with a similar fate.

The bill as passed by the Senate amended the bill as it came from the House in thirty-four particulars, the amendments not hereinbefore discussed being only of minor importance and mostly of a clerical nature.

As beforestated, the bill as amended passed the Senate on the 31st of January, 1893. It came back to the House on the 2d of February, and the next day was referred to the Committee on Agriculture. That committee, through its chairman, on the following day reported it back favorably, and it was referred to the Union Calendar and ordered to be printed.

Nothing further was done in the matter until March 1. On that day a strenuous effort was made to pass the bill as amended under a suspension of the rules, but after a bitter and acrimonious debate of thirty minutes, fifteen to a side, in which eight members spoke against the bill and three for it, the motion was lost by the

vote of 172 yeas to 124 nays, 33 not voting, two-thirds not having voted in the affirmative.

Thus ended the efforts of the Fifty-second Congress to enact legislation to suppress "fictitious dealing in agricultural products." As will be observed from an analysis of the votes, a majority of both Houses favored legislation on the lines of the Hatch bill, and but for the fact that those having the bill in charge in the House were apparently never able to secure consideration of the measure except on a motion to suspend the rules, the proposed legislation would certainly have been enacted.

Bills on the same lines were introduced in the Fifty-third Congress, but nothing serious seems to have been attempted toward enacting them into law.

In the meantime, however, the Committee on Agriculture and Forestry of the Senate, composed of Senators George, Bate, Ransom, Pepper, Roach, Washburn, Proctor, and Hansbrough, acting under a resolution of the Senate dated April 19, 1893, made a further investigation of the question of "futures," especially in respect of cotton. This resolution, among other things, provided as follows:

"Resolved, That the Committee on Agriculture and Forestry be, and they are hereby, authorized and directed to ascertain in every practical way, and report from time to time to the Senate, the present condition of Agriculture in the United States and the present prices of agricultural products, and if there be any of which the prices are depressed, then the causes of such depression and the remedies therefor."

A subcommittee composed of the chairman and Senator Bate visited the cities of St. Louis, Memphis, and New Orleans, and took a large amount of testimony both for and against "the present methods of dealing in cotton for future delivery, and their effect upon prices." The hearings began at St. Louis, November 8, 1893, and ended at New Orleans on the 27th of the same month; and the testimony taken appears to cover every branch of the cotton industry. A digest of this testimony will be found in Appendix C.

The committee also sent out two circular letters to a number of prominent cotton growers throughout the Southern States; another to a number of leading cotton merchants in the South; and another to some of the leading cotton manufacturers of the country, especially in New England—all seeking information on the general lines of the resolution which authorized the investigation. Many replies were received to all these letters, most of which were afterwards printed along with the testimony taken, the final report of the committee, and the report of the secretary of the committee, Mr. A. B. Shepperson, a cotton expert. The printed report is numbered 986 of the Senate, Fifty-third Congress, third session. Part 1 is a large octavo volume of over 500 pages, and is perhaps the most useful report on the subject that was ever made by Congress. It will subserve no useful purpose to digest or analyze the various replies to the letters received to the several circular letters above referred to. No facts or suggestions were obtained that had not already been embraced in the testimony of the many witnesses who had appeared before the subcommittee, and it is not deemed necessary to encumber the record with repetitions.

It will be observed that my report embraces several matters not covered by the specific resolution of your honorable body, under which I was originally appointed. But believing as I do that these additional matters are essential to a full and fair understanding of the general subject of "Fictitious dealings in agricultural products," I have taken the liberty to enlarge upon the work mapped out by the general terms of that resolution, and have done that extra work because I conceived it to be for the best interests of the Industrial Commission in the matter under consideration.

All of which is respectfully submitted.

HARVEY M. FRIEND.

APPENDIX A.

DIGEST OF TESTIMONY TAKEN BY THE COMMITTEE ON AGRICULTURE OF THE HOUSE OF REPRESENTATIVES OF THE FIFTY-SECOND CONGRESS ON THE SUBJECT OF FICTITIOUS DEALING IN AGRICULTURAL PRODUCTS.

[Mr. C. WOOD DAVIS, of Kansas, a farmer and a representative of the Board of Trade of Wichita, in that State.]

Citing statistics, he said that from 1870 to 1884 the food-producing area of the world increased more rapidly than did the population of the bread-eating countries, and since that time the reverse was true; that in 1870, each unit of the bread-eating population of the world had for his consumption the product of 0.427 of an

acre of wheat, and the average gold price of that cereal in England at that time was \$1.70 per bushel; that in 1880 the product of 0.443 of an acre was the quota of wheat for each bread-eating unit, and the price of wheat had declined to \$1.33 per bushel, it naturally appearing therefrom that increased production had caused the decline in the price; but that since 1880, the quota of wheat for such unit was only 0.398 of an acre, while the price, which, on the theory of increased production causing a decline, would logically have gone up, had, as a matter of fact, continued to decline; that as respects both wheat and rye the world has relatively to its bread-eating population 13 per cent less than in 1870; the prices of both of those cereals had gone down; and he maintained, therefore, that the causes of agricultural depression could not be attributed to excess of production. He said transportation rates had been directly in favor of the farmer; and passing by the questions of tariff and finance, to neither of which he attributed the general fall in prices, he contended that such depression had been caused almost wholly by fictitious dealings on the boards of trade, that system of trading having grown up about the time of the beginning of the general depression in prices. By the system of short-selling more money is tied up in margins than would pay for the entire visible and invisible supply of the cereals dealt in, thus withdrawing that money out of the legitimate channels of trade.

The entire sum employed in moving the grain crops, exclusive of that used by railroads, is not believed to be over \$500,000,000, while the amount invested by the producer is on an average for the whole year twice that amount. The volume of production, relative to population, is less than formerly, as shown by statistics; hence these methods are not necessary to the proper distribution of products. He maintained that all articles of commerce grown upon the farm which were not dealt in on the boards of trade were easily marketed, which demonstrated the fallacy of the contention that board-of-trade dealings were necessary to properly distribute the products dealt in. He called attention to the great disparity between the actual amount of production of the cereals and the amount sold on the American exchanges, such sales aggregating practically ten times the amount of production of the whole world, and asserted that these figures demonstrated that by far the greater portions of such sales were purely fictitious, and were in fact mere gaming transactions. He referred to a maxim in trade that a deficit of 10 or 15 per cent in any indispensable product will increase the price 100 to 300 per cent, and that a small excess of production will greatly depreciate it; and said that the excessive offerings on the exchanges of illimitable quantities of products would have the same effect on prices as an excess of production.

Says prices of grain are not made in Liverpool, but in Chicago, and the market there is generally controlled by the "short seller," whose interest it is to depress prices, quoting newspaper articles in support of his statement. In such sales very few deliveries are made or are even contemplated. The farmer has nothing to do with fixing the prices of his products, and is materially injured by the competition of the fictitious dealer who has practically little invested, comparatively speaking. Believes any of the bills introduced in the House, if enacted into law, would stop such dealings. The sales of futures are the predominant, potent, and controlling factors in depressing prices. Says the world is producing less wheat than it consumes.

Replying to the argument that every seller presupposes a buyer, he said that there were many more times the amount of grain sold than were offered for sale, and that the offerings regulated the price, and the offerings of fictitious products might be illimitable. The principal ones favoring these transactions are the brokers and commission merchants, who make large sums simply as commissions.

Since 1884 the ratio of consumption of breadstuffs of the world has increased over their production, and since that time the reserve of such products which had then accumulated has been drawn upon for consumption.

[H. H. ALDRICH, representing the Chicago Board of Trade, a trader of more than twenty years' experience.]

Chicago Board of Trade favors the bill so far as it relates to "options," as defined in its first section. Such dealings are illegal, and are not recognized by the board. They are contrary to the laws of the State, and the board has spent several thousand dollars in trying to have the law enforced.

The system of futures has come as an evolution to facilitate business, just as the clearing-house for the banks came; and the boards of trade and chambers of commerce are clearing-houses for this business.

States that the offers to buy are equal almost any day to the offers to sell, and believes that a decline in prices comes as a rule only when it is legitimate, when the supply is greater than the demand. Does not think, in the long run, short selling has any effect on the market; it may affect it at times, but only temporarily, just as buying would temporarily advance prices, but eventually the law of

supply and demand will adjust prices. Believes if the bill should pass it would be most disastrous to the farmers.

Called attention to the fact that by the census of 1880 the agriculturists numbered 47 per cent of the population of the country, and that since that time they had decreased to 45 per cent, and said that if the bill would have the effect claimed for it, it would be detrimental to the consumers, who comprise 55 per cent of the population. Said that the farmer's product was the foundation of wealth and prosperity, but maintained the producer could not be prosperous unless the consumer was also prosperous. Said labor organizations of the country had favored legislation of this sort, urging as a reason for the same that the existence of the boards of trade and produce exchanges caused higher prices for food products. "If the farmer is to be the distributor of his products he must be a capitalist."

Denies the statement made by Mr. Davis that more money was tied up in margins than was required to move the crop, and said not over \$5,000,000 were up in margins in Chicago, and it requires \$188,000,000 to move the grain crops. Futures system not new, and was not a new system 20 years before, but then not on so large a scale. A large part of the grain that comes to Chicago is sold without going through the elevator; sold by sample, saving expenses and charges for rehandling.

Prosperity of the country depends upon the farmer securing a profit on what he raises. Seven hundred thousand bushels actual grain upon the Chicago market daily. Futures much larger. No sales of grain on board of trade recorded. Never knew of that matter having been discussed by the board. Every contract for future delivery is represented by a written contract, whose terms must be complied with. No contract as to "options," which the board will enforce, such trading being simply gambling transactions, and not carried on in the board, but in the corridors or in the street—hence called curb trading.

The actual supply and demand regulate the value of farm products. In futures the same quantity of grain may be actually sold many times over in the same day, which will account for the large sales reported. A party with large capital can, by putting up enough money, temporarily advance or depress the price of wheat, but in the end it will regulate itself. If a large number of "puts" should be sold on any day after the close of business on the exchange it might raise the price the next day somewhat, and "calls" might depress it.

[A. J. SAWYER, Minneapolis, a dealer in wheat.]

Explains the mode of moving the wheat crop of the Northwest. The Northwest produces 150,000,000 bushels of spring wheat, the bulk of which has to be handled in 3 or 4 months. He furnishes money for at least 175 country elevators in Minnesota and the two Dakotas. Sends out \$500 to \$1,000 to each elevator, making the first day \$100,000 to \$150,000. Wheat is threshed from the shock and is delivered at the elevators at once for cash to the producer, and as it takes sometimes several days to get the wheat to a realizing market, elevators often have 5 or 6 days' receipts on hand at once. Grain can not be sold to foreign consumers as rapidly as it is delivered at the elevators, and future sales thus become necessary, otherwise the elevators would have to close down. Futures contracts are used by elevator men for insurance purposes. Farmer gets an elevator receipt when he puts his wheat in the elevator, in case he does not then desire to sell it, and he can always borrow 90 per cent of the value of the wheat on that receipt. Thinks illegitimate trading in wheat should be suppressed. In country elevators the charges are 2½ cents a bushel, including insurance for 20 days, and one-half cent every 15 days; 5 cents carries it 6 months, and another 5 cents carries it another 6 months. In terminal elevators the first cost is 7½ cents for the first 15 days, without insurance, then one-half cent for every 15 days, without insurance. Elevator receipts are negotiable paper.

Submitted protests against the bill from the Minneapolis Clearing Association, the Minneapolis Union, and the Minneapolis Chamber of Commerce.

[JOHN WHITTAKER, of St. Louis. Merchant for 30 years, senior member of the firm of Francis Whittaker & Sons, packer of beef and hog products at St. Louis and Wichita, Kans. Not largely a wheat dealer.]

Only within the last 8 or 10 years that short sales have seriously affected prices. The main object in selling what one has not got is to depress the market. The short selling of farm products is one of the greatest evils that have befallen the United States. Up to 1884 or 1885, for 5 years wheat sold in Chicago on an average at \$1.04 a bushel. In the 5 years after 1885 wheat has averaged in Chicago 81 cents. Only one or two things that would justify that decline in price: overproduction at home or abroad or a large lessening of the consumption by foreign people or our own people. Statistics show no overproduction in wheat,

and the bread-eating populations of Europe and America have increased; hence, short selling is the evil that has reduced prices. No record of short sales kept in Chicago, but one kept in New York. In January, 1892, wheat receipts in New York amounted to about 3,250,000; exports were 4,250,000 bushels, while short sales amounted to nearly 84,000,000 bushels, and undoubtedly depressed the price of actual wheat. In the past 5 years this country has sold its farm products at \$150,000,000 to \$200,000,000 per annum less than they would have sold for had it not been for short selling. Speculator has made this sum. Approves the House bill. It will not affect legitimate trade. Short seller is the American anarchist. The men who own wheat ought to control the sale of it, and not the nonowners or sellers of wind wheat. Supply and demand ought alone to regulate prices. If shorts were eliminated from the market prices would advance. Market of futures of actual wheat will not be interfered with by the passage of the bill under consideration; on the contrary, actual buyers would become more numerous.

Fictitious sales of meat products constantly depress the prices of live stock from 5 to 20 per cent. The law of supply and demand operates only when conditions are normal, and the abnormal conditions created by short sales defeat this law. Professional operators always work on the "bear" side. Thinks if there were no "bears" on the New York or New Orleans Cotton Exchanges cotton would not have gone below 8 cents a pound, and that there is no overproduction of cotton. Incorporated into his remarks an editorial from the Minneapolis Tribune and one from the San Francisco Examiner sustaining the views he has expressed.

"We often have letters from Europe saying that they could afford to pay us better prices for the hog product if we would only hold our market steady, but we can not hold our market steady when every Tom, Dick, and Harry is selling his promises to deliver in the future."

News that would send the market up will not work to the same extent that news of a very large crop would work to put it down. Does not think the abolition of short sales would result in the formation of great trusts of packers or grain dealers. Boards of trade appear to be anxious to close out "bucket shops," but they permit the same kind of dealings on their own floors. The buying of the short sales does not have the effect to advance prices or to sustain them. There are more sellers of grain than buyers, and prices are thus depressed because the quantity offered for sale is unlimited. A buyer has got to look out before and prepare to receive wheat when the time for delivery comes around.

"Wash" sales are such as do not contemplate any delivery but are between friends, and are wiped out when the parties meet. Their object is simply to affect the market one way or the other.

Every man who buys on the exchange has the right to demand an actual delivery of the article; and he can, if his capital is sufficient, get control of the market and advance prices, but this seldom occurs. An "option" is a mere bet on what the price of an article will be at a certain time.

[A. J. SAWYER, of Minneapolis, resumed his remarks.]

An "option," which means the privilege to deliver at any time from the first to the last of the month, gives an opportunity of selling cash wheat and buying that privilege back again. Without that privilege we would be compelled to force the cash wheat on the market already supplied, which would force prices down. Can also borrow money on the surplus wheat in the elevators upon elevator receipts. The receipts are attached to notes, and the loans are usually floated in New England through the New York banks, the receipts being regarded as collateral of the best kind. The surplus wheat may be moved to Duluth, under the borrowing contract, a terminal receipt is then obtained which may be exchanged for the first receipt. These transactions enable the grain to be moved. The principal object of options is to insure against a decline in prices. Twenty or 25 years ago the farmer had a tariff on everything exported, which was the premium on gold, and that kept prices up. As the premium on gold decreased prices went down. Labor did not decrease in price as rapidly as did the products of the soil. Consequently the farmer can not make as much on the same capital as he could before. Labor is higher now than it was 20 and 25 years ago.

Wheat is sold at the country elevators for cash. Does not believe that the offering of options lessens the value of the product, because nearly all offerings are made with a limit as to price.

[H. H. ALDRICH, of Chicago.]

Replying to the statement of Mr. Whittaker, that low prices were due to short selling, he quoted from David A. Wells and Edward Atkinson, recognized economic experts, to the effect that overproduction was the principal cause of the

decline, and that the law of supply and demand had not been violated. Short selling began before the decline in prices began and can not, therefore, be considered the cause of the decline. Asserts that in Chicago the price of wheat on the board of trade averages from 2 to 10 cents a bushel higher than the shipping or milling basis of wheat for 10 months in the year. Controverts the statement that the offerings of short sellers are unlimited, and says if that were true there would be no market. Not the short seller who frequently makes the great break in prices, but nearly always the man who is long on wheat and who gets out because his money is exhausted. "It is not the interest of the short seller to depress the prices of property except for the time being." If a man sells wheat and it declines the only way he can get out is to buy back the quantity sold; sometimes his contract is closed out by what is called an offset. He will purchase as cheaply as he can to fulfill his contract; but the short seller necessarily becomes the most earnest buyer on the market.

In the settlement of differences where no delivery is made the result is the same as if actual delivery were made, and is perfectly legal. A buyer can always get the wheat he purchases. In the trading for future delivery, No. 2 wheat is the grade in which dealings are made, and the prices of the other grades are less affected by futures than of this grade. Half the year the Chicago market is above the shipping basis, because of the freight rates east. If it were not for future dealings, the price paid for wheat by the large millers would be less than it is, because they can carry their future contracts cheaper than they can carry wheat. If the millers would only keep not to exceed thirty days' supply of wheat on hand at any one time and could not buy future contracts, the market for actual grain would not be as good as under the present system, because they would not make contracts in Europe for the delivery of flour six months hence as they do now, not knowing what the price of wheat would be when their flour contracts would mature.

[At this point the chairman took occasion to criticise severely the statistics of the Agricultural Department prepared by Mr. Dodge, and said that in 1887 those statistics had been so inaccurate in respect of the tobacco crop that the tobacco growers by following them had lost 25 per cent in the value of their crops, and Mr. Dodge afterwards had officially acknowledged the inaccuracy of those statistics.]

[H. MATTULLATH, of St. Paul.]

Selling of "wind" wheat depresses the price, but buying it back does not enhance prices to the same extent, because when such buying is done the farmer has already parted with his crop and to fill the contracts less needs to be bought, many of the contracts having been settled in the meantime. "There is a law and rule of trade that every holder of a product is entitled to the whole buying capacity of the country, the whole buying propensity of the country, and anybody who robs him of the buying propensity and forestalls the market or turns off the buyer before he meets the producer robs him of his natural right." Short sellers violate this law. The legitimate short sales on the boards of trade are beneficial to the farmer, because they allow the commission merchant and the elevator man to pay him the prices that are ruling at the time, less a small commission and small fees for insurance, interest, and storage. Otherwise, he would be dealt with on very wide margins. Criticises the original Butterworth bill as being crude, and injurious to legitimate trade; criticises the license feature of that bill, which was substantially the same as in the Hatch bill, and says it would not raise any revenue and could not be enforced.

Submitted for the consideration of the committee a draft of a bill which he claimed would drive out the seller of "wind" wheat, but would not interfere with legitimate future transactions. That proposed bill was in substance as follows:

It was modeled on the lines of the Hatch bill, but provided lighter penalties for violations of it. Its most distinctive features were found in its definition of "options" and "futures," and the distinction made between the ordinary "future" and a "closed future." Its first two sections are set out in full as follows:

"For the purpose of this act the following definitions shall apply: A 'future' is an agreement in writing by which one party thereto sells and contracts to deliver to the other party thereto, at a future time or within a certain future period of time, a certain quantity of merchandise of specified quality at a certain place and at a stipulated price, the other party agreeing to receive the same and pay for it, provided the party who issued the 'future' directly, or as principal through a broker, is, at the time of issuing such 'future,' the owner of a like quantity of such merchandise as he agrees to deliver, and against which no previous 'option,' 'future,' or other contract to deliver has been issued, such fact being embodied in the agreement, together with the description of the place where such merchandise is stored in the United States, and remains so the owner of it until the 'future' is closed; or provided he becomes, in case of sale or consumption of the

merchandise against which he issued the 'future,' in lieu thereof and before he parts with the possession of it, the owner of another 'future' or 'certificate of sale' for at least the same amount, same time and place of delivery, and holds the same until the 'future' issued by him is closed.

"A contract to deliver a specified lot of merchandise sold on sample is not a future.

"Issuing a future' means becoming a party to a contract called 'future,' who agrees to sell and deliver.

"A 'closed future' is a future on which full delivery has been made, or which is canceled, or the time of delivery of which has expired.

"A 'speculative future' is a contract similar to a future, with this distinction, that the party issuing the same is at the time of issue not the owner of a like amount of such merchandise as he agrees to deliver, against which no option, future, or other contract to deliver has been issued.

"An oral agreement of the nature of a future, on which margins are put up or deliveries made or expected to be made, or differences paid or expected to be paid, is a 'speculative future.'

"A contract of the nature of a future issued by a broker on order of and for another party is a 'speculative future,' unless issued on an order in writing of the principal, setting forth that he is the owner of a like quantity of merchandise as that involved in the future, against which no option, future, or other contract to deliver has been issued, giving also the description of the place where such merchandise is stored in the United States, or unless issued on an order by telegram requesting the issue of a future against merchandise stored in a place sufficiently described in such telegram.

"A future becomes a 'speculative future' if at any time before it is closed the party issuing the same is not the owner of a like amount of such merchandise as he agrees to deliver, against which no previous option, future, or contract to deliver has been issued, nor the holder of another open future, against which no certificate of sale has been issued, nor the holder of a broker's 'certificate of sale' for at least the same amount of merchandise, same time and place of delivery as that of the 'future.'

"A 'certificate of sale' is a certificate issued by a licensed broker, certifying that the recipient of the same has bought of said broker a certain quantity of merchandise for future delivery within a certain period of time, at a certain place and at a stipulated price, and that the said certificate is issued against a certain future then held by said broker, and involving a stated amount of merchandise as large as, or larger than, that sold by the certificate of sale and delivered at the same place and time as that stipulated in the certificate of sale, and further setting forth that the aggregate amounts of merchandise involved in certificates of sale outstanding against such 'future' do not exceed the amount involved in such future.

"A broker is a person dealing in futures, speculative futures, or certificates of sale in his own behalf or as agent or employee of others.

"A dealer in futures is a person issuing futures and speculative futures (but no certificates of sale) in his own behalf only."

[HERBERT MYRICK, of Springfield, Mass.]

Opposes futures, and instanced the recent dealings in hops on the New York Hop Exchange, which, he said, were injurious to the hop trade, because brokers on the exchange were enabled to fix prices to suit themselves, regardless of the amount of the crop or the demand for the product. The seller for future delivery is interested in low prices and exerts himself to the utmost to depress them. It is easier to put the market down than to put it up. Futures create a fictitious supply of any commodity dealt in, and thus depress prices.

[JOHN W. LABOUISSSE, representing the New Orleans Cotton Exchange.]

New York is not a spot market, but the leading future market for cotton in the United States. Replying to the statements that had been made before the committee that the enormous sales of futures depressed prices, he cited statistics to show that at the time of the greatest future dealings prices were considerably enhanced, and said the law of supply and demand regulated prices entirely, in the long run. The New Orleans Cotton Exchange, which was inaugurated in 1871, commenced dealing in futures in 1880, because it was found necessary to fall into line with everybody else. The exchange is composed of over 300 members, divided into classes, as follows:

1. Commission merchants, who advance money to planters to grow cotton.
2. Exporters, chiefly foreigners, who spend the fall and winter in buying cotton for foreign consumption.

3. Spot brokers, who are experts in classifying the product, and who represent the planter in his dealings with the exporter.

4. Brokers who contract to move the cotton for people on the exchange.

5. Brokers who make contracts for future delivery, and pass their contracts on the market.

"Options," which are nothing more than "puts" and "calls," are not recognized on the exchange, as they are merely bets or wagers on the price of the product at a future date.

"Futures" are known on the exchange as "contracts for forward delivery," and do not partake of the nature of a wager; neither do they contain any provision for the settlement of differences between the contracting parties. Submitted a form of the contracts on the exchange, as follows:

CONTRACT A.

OFFICE OF ———,
New Orleans, ——— 189—.

Bought for ——— ———, of ——— ———, 50,000 pounds, in about 100 square bales cotton, growth of the United States, deliverable from press or presses in the port of New Orleans, between the first and last days of ——— next, inclusive. The delivery within such time to be at seller's option, in lots of not less than 50 bales, upon 5 days' notice to buyers. The cotton to be of any grade from good ordinary to fair, inclusive, and, if stained, not below low middling, at price of ——— cents (——) per pound for middling, with additions or deductions for other grades, according to the quotations of the New Orleans Cotton Exchange existing on the sixth day previous to the day on which the delivery is due.

Either party to have the right to call for a margin as the variations of the market for like deliveries may warrant, and which margin shall be kept good.

This contract is made in view of, and in all respects subject to, the rules and conditions established by the New Orleans Cotton Exchange.

Respectfully,

Per ——— ———,

In regard to delivery under the contract, the seller has the option to deliver at any time between the first and last of the month by giving the buyer five days' notice of his intention to deliver. In regard to margins, if the market advances the seller is required to deposit the amount of the advance in a designated bank, but if the market goes down the buyer must make such deposit, to make good the contract. The contracts are kept margined up to the contract price to insure the faithful execution of the contract at its maturity. A man who fails to carry out his contracts in the exchange is expelled. Answering the question, "How could 21,000,000 bales of cotton, which was the amount of futures in New York and New Orleans in a given time, be delivered on the exchanges," he replied that the men who sold the contracts often repurchased them from the parties to whom they had sold, and if they could not buy their contracts back they would be "squeezed."

Under the system of futures the market is more stable, referring to statistics to prove the statement. Present low price of cotton attributable to overproduction, and the fact of failure of grain crops abroad, by reason whereof the consumers of cotton abroad could not afford to buy clothing, but had to spend their money for food. If the exchanges in New York and New Orleans were closed the future business would be carried on in Liverpool, Havre, and Bremen. The price is fixed by supply and demand. The exchanges register the price. The trouble with the people of the South in respect of cotton is that they buy, instead of hedging on the crop, and then they blame the market; illustrated this statement by reference to a certain planter who, at one time, could have hedged against his crop and received 10.30 cents per pound for it, but afterwards sold at 8 cents. The abolition of futures would bring the whole export trade of the cotton crop to a "dead halt," because at least 90 per cent of the cotton which is sold to spinners is sold before it is bought. Exporters keep in touch with the foreign markets every night by cabling Liverpool, Bremen, and Havre. They do not own the cotton, but buy as they need it to fill their contracts abroad, and thus the cotton crop of the United States is moved. Without futures the crop would at times glut the market, forcing prices down; at other times there would be a great scarcity, perhaps, with the cotton bought cheap in the hands of big owners, thereby forcing prices up, thus making the market very irregular. The spot market governs the future market, and is in turn governed by the law of supply and demand. The price of cotton has not gone down relatively as much as that of many other products. Submitted a diagram prepared by the British Royal Commission showing a general decline in

the prices of all farm products since 1874, which that commission attributed to the demonetization of silver by the States of the Latin Union and the United States about that time. Referring to statements theretofore made that such a man as Partridge was bigger than the wheat market, and could swing the market either up or down at his pleasure, he said he was astounded at his moderation in that he did not at once make himself a twenty times millionaire. The whole cotton-trade world, spinners, manufacturers, and all, would be glad to see cotton advance. The annual consumption of cotton in the world is about 12,000,000 bales. The average surplus carried over from one year to another is from 1,000,000 to 1,500,000 bales.

While about 8 per cent of the corn crop, and 25 to 30 per cent of the wheat crop, are exported, at least 70 per cent of the cotton crop is exported, and without futures, prices would be fixed entirely by the markets of Europe, and would be lower than at present.

[JOHN G. HAZARD, of the New Orleans Cotton Exchange.]

Advanced the same views as the preceding witness, but added nothing to his argument.

[HENRY T. KNEELAND, of the New York Produce Exchange.]

Presented a memorial of the exchange which opposed the contemplated legislation, excepting those features of the bill relating to options, and set forth with much detail various "benefits conferred by the system of dealing in futures" upon all persons and classes engaged in any way in raising or handling the products dealt in on the exchanges. These asserted benefits may all be summarized in the statement that "futures" widen and broaden the market for actual products, reduce the risks of handling them, thus increasing the price paid to the producer, facilitate the movement of our leading staples, and prevent monopolies and trusts from getting control of the products of the farm.

He opposed the bill as class legislation; showed how it was possible on the exchange to have a claim of legitimate transactions growing out of one lot of produce so that the sum of all those transactions reported might show dealings many times over in that one lot of produce, and compared such dealings to the transactions of the banks as settled in the clearing house; and explained that "the settlement of differences between contracts" on the exchange was a method of settlement of produce contracts on the principle of the clearing house of the banks, devised by the exchange to do away with the risks of a failure of any one of the parties to a produce contract to meet his obligations promptly, and to also do away with the risks of large checks, which sometimes had failed to be met when presented. He said "puts" and "calls" were gambling transactions, but did not believe legislation could entirely eliminate them from the business without doing great injury to legitimate trade and commerce. The "bucket shops" ought to be suppressed.

[CHARLES W. IDE, president of the New York Cotton Exchange.]

The law of supply and demand regulates prices, but they may be slightly affected temporarily by speculation. Futures bolster up prices. The foreign consumers are anxious for the bill to pass, as they believe the result will be to lower prices.

[JAMES O. BLOSS, vice-president of the New York Cotton Exchange.]

Presented protests against the proposed legislation from the New York banks and the New York Cotton Exchange. The substance of the first of these protests was that, as bankers, they considered it less risky to advance money on the products dealt in on the exchanges since the inauguration of futures than it was before. The substance of the protest of the Cotton Exchange was an argument in favor of future dealings covering practically the same ground as that of Mr. Labouisse before the committee, heretofore abstracted.

If short selling invariably has the effect of reducing prices, why is it that, during the last twenty years when such dealings have been in force, prices of the articles traded in have not reached zero? Greater fluctuations in the market and lower prices at times prior to the system of futures. For every sale there is a purchase. "Margin" is simply a pledge that the party to it will fulfill the engagement he has entered into, and is in the nature of earnest money deposited by a buyer to bind a real estate transaction. The advantage of future dealings to the producer is, that the surplus of all products must be taken care of by the capital of the world pending the time when that surplus is needed, and this system prevents that degree of depression that otherwise would take place in the articles

produced, because human nature is always hopeful, and, the world over, is inclined to be "bullish." The result is that, after an article has made a moderate decline, many people come into the market who believe it will advance, and they constitute a buying power which lifts the weight of the surplus off of the immediate market. New York carries an immense amount of the cotton surplus from year to year, keeping it out of the immediate market, thus maintaining prices. This system was the outgrowth of an evolution of trade, and was made necessary in order to keep pace with the rapid advances in other lines of business. Speculation doubtless exerts a passing influence upon values, but it is just as likely to be for an advance as for a decline. The proposition that future contracts might be made only to the extent of the crop traded in is absurd, because under such an arrangement every producer would have to find an actual consumer. The world is too large for such primitive notions of commerce. Hard to tell just what are legitimate and what illegitimate transactions; they are so interwoven that one can not be destroyed without destroying the uses of the other. The prices for futures are based on the present cash price plus the expenses that would accrue—storage, interest, insurance, loss of weight, etc. Futures have preserved the equilibrium of prices. Expenses of future system do not come out of the crop or the business, but out of the speculator.

[MELVIN J. FORBES, representing the Duluth Board of Trade.]

Opposes the bill and indorses the views of Mr. Kneeland (*supra*). Futures are necessary to the grain trade at Duluth, because the receipts there in the fall are greatly in excess of the demand from consumers, and the only way to take care of those receipts and keep up prices is to sell futures against them. Deliveries in Eastern markets must be made during the period of water navigation, when freights are cheap, although the wheat may not be needed until in the winter, and those purchasers can then protect themselves against a decline in price by selling futures against their purchases. The decline in the price of wheat is not due to futures, but has come about largely from the increased production all over the world, especially in the Northwest. Speculation tends to advance prices. The contract grade of wheat at Duluth is "No. 1 Northern;" all other grades are sold on the basis of this grade. It is next to "No. 1 hard," which is the best wheat in the world and is used by the mills. The man who owns the wheat, who has to take delivery of it at the time it can be used, is the only man who is entitled of right to sell futures against it; but the bill will not permit him to do so. Opposes "puts" and "calls" as gambling transactions and injurious to the wheat trade. Cost of futures does not come out of the farmer.

[WILLIAM P. HOWARD, of St. Louis.]

Made a bitter attack on "futures," which he denominated as gambling of the most pernicious kind; said they were demoralizing to trade and were ruining the country generally; and alleged that they depressed prices of all products. [His statement was almost wholly assertion, and an analysis of it would serve no useful purpose.]

[JAMES O. BLOSS, vice-president of the New York Cotton Exchange.]

Stated that the Texas Wool Growers' Association had written several letters to the New York Cotton Exchange requesting it to adopt rules and regulations for future dealings in wool, believing it would benefit the trade in that article. Thinks a method might be adopted to handle wool the same as cotton, as there are no more grades of it than of cotton.

The chairman combats that idea, and says all wool is sold by sample, and can not be sold otherwise.

[CHARLES D. HAMILL, president of the Chicago Board of Trade.]

Presented a protest from his organization against the contemplated legislation, which explained the growth of the future system and claimed for it a large share in the wonderful commercial development and growth of the South and West, and maintained that speculation in Chicago enhanced prices there and made it the best market for the producer. Chicago is the clearing house of the world in grain and provisions, and the markets there are, a large part of the year, above the shipping point; that is, relatively higher than foreign markets. This would not be so if futures depressed prices, because more futures in grain and provisions are sold in Chicago than anywhere else. Futures not in the interest of millers, because

prices are too well sustained, and millers accordingly locate where there is little or no active trading in grain—where there is no speculation. The interests of the farmer and the boards of trade are identical. The system should be judged not by its defects, but by its excellencies. "Buying and selling for future delivery exist in all departments of trade, but are nowhere surrounded by such safeguards or attended with such beneficent results as under the rules and regulations of the Chicago board and of kindred organizations." "This beneficent method is the outgrowth of necessity, and has brought into existence the chief grain markets of the world." Without it commerce would become sluggish. Drew a beautiful picture of the benefits claimed to have been the results of the future system. Also presented a protest of the Chicago banks against the proposed legislation, the principal argument in which, that was not embraced in the preceding protest, being that "to destroy this system would reduce the circulation of money when most needed to move the crops, would greatly restrict credits, owing to the uncertainty of values, would practically drive the small grain merchants from the field and concentrate the business of handling the products in the hands of wealthy corporations and syndicates of warehousemen and millers."

Proposed legislation would hamper commerce. Except for this method grain which now remains in the West in warehouses would be rushed to the seaboard, where it would depress the market because foreign buyers could beat down the prices. Speculation influences prices to some extent, temporarily, often one way and then the other, but the tendency is to sustain values. Opposes options; not permitted on the board of trade and prohibited by statute in Illinois. The future system brings more spot wheat to Chicago than would come without it. First section of the bill does not conflict with any rule of trade of the board. Would favor national law wiping out options, as thus described. Trading on Chicago Board of Trade begins at 9.30 a. m. and continues till 1.15 p. m. No record kept of trades, but a written contract required for everyone, and an actual delivery also required either of the product itself or a warehouse receipt. After close of market and until 4 p. m., in another room of same building, option trading is indulged in by many board of trade members; but, in his opinion, such trading has no influence upon the real market. Future contracts are negotiable instruments and may pass from man to man indefinitely, but they do not thereby affect the visible supply of the actual product. The reason why futures tend to sustain prices is because there are ten buyers who know there is a short interest in the market to one who is a buyer, because he believes the consumer will take the property at a higher price, and the moment a man sells property which he has not got he becomes a buyer from necessity, the best buyers being the shorts. Such influences are stronger than the depressing influence of short sales. Knows of hardly any bears who have made money as speculators, but knows of many bulls who have done so. Millers favor this legislation, because it would depress the price of wheat and create a monopoly in their favor.

[SAMUEL W. ALLERTON, of Chicago.]

For every seller there must be a buyer, and a market is made up of buyers and sellers from a great number of points. Chicago is the great central grain market of the world. Trading in futures originated in the necessity of trade, and was the natural outgrowth of the requirements of business. Trading in futures in pork was first inaugurated by the Government buying prime mess pork for future delivery during the war. Contrasted the conditions of the grain trade and the packing and milling industries in the early days prior to futures, and maintained that conditions have greatly improved in the interest of the producer and the trade generally. Risks are reduced, and prices necessarily advanced. Without future trading in the fall, when there are large receipts of grain and all has to be sold for cash, the product would go to a low price. This would be in the interest of large carriers but no one else. If farm products were confined to cash transactions prosperity would be wiped out; large combinations of capital would control all. Gave illustrations. "Intelligent speculation establishes more nearly positive values than scattered opinions, and for that reason prices based upon the average opinion of the board are nearer right than those fixed by a few individual views." Gambling in bucket shops ought to be wiped out. Futures tend to regulate values and render prices more uniform. If there was no future trading the farmers' surplus products would be a drag on the market, and would sell at low prices. They would be bought by the conservative buyer whose interest lies in depressing prices. Futures do not govern the market, but they help to maintain it. Thinks it would benefit producers to prohibit all illegitimate transactions.

[J. HENRY NORTON, of the Chicago Board of Trade.]

Argued against the bill on substantially the identical lines of Mr. Hamill and Mr. Allerton, covered the same ground as they did, and made no additional point or suggestion.

[CHARLES A. PILLSBURY, of Minneapolis, member of the boards of trade of Chicago, New York, Minneapolis, and Duluth; president of the largest elevator system in the country, and a stockholder of several others.]

Legitimate sale of wheat should be as free as the air, and legislation should only be directed against gambling in wheat. Thinks 90 per cent of the transactions on Chicago Board of Trade illegitimate. Short selling not necessary. Unknown in real estate, and in the dairy business, which overshadows every other business in the country. Large amounts of flour are sold for future delivery, but 99½ per cent of it is actually delivered according to contract. The actual seller of wheat tries to sell on the top of the market; the short seller sells when the markets are weak and it will depress prices. Millers can not now lay in large stock of wheat, lest short seller may depress the market. Maintains that the large amount of short selling depreciates the price of wheat, because the supply is artificially increased. The Chicago market is put up and down on reports as to the prospects of passing this bill. That illustrates the power wielded on the board of trade, and is a strong argument in favor of the passage of some kind of a bill to restrict short selling.

"A man who owns wheat and controls it, or who is the agent, or broker, or commission agent of the men who control it, ought to be allowed to sell wheat in the freest possible manner, and the contract should be in the name of the principal—the man who is responsible—and it should be put upon the principal in the case to show, if he is called upon, that he owns or controls that amount of wheat. Any selling beyond that is illegitimate."

Thinks the world has been gradually drawing on the surplus wheat it has been carrying from year to year. Combats the idea advanced by opponents of the bill that doing away with futures would enable the milling interests to form a great trust to control the price of wheat, and says millers make more money when wheat is high than when it is low. If wheat is \$1 in Chicago, which would mean 80 to 85 cents on the farm, the farmers of the Northwest would be as prosperous as the average man in a community. Never examined the Hatch bill. If some legislation is not had to stop short selling, the business will "play out" in five years, as there will not be any buyers. Chicago is the wheat center of the world, and fixes the price for the world. Futures not the sole cause of low prices; admits the financial question has something to do with it. The capacity of the elevator systems of the country probably 50,000,000 bushels. Explains that system as did Mr. Sawyer (*supra*). Says wheat is higher in Minneapolis than in Chicago.

[B. J. GIFFORD, of Kankakee, Ill.]

Favors the bill, and argued on the same lines as Mr. Pillsbury, who, he said, had "stolen his thunder." Replying to the argument that in times of great depression the short seller becomes an actual buyer, he said if it had not been for such short seller the chances were there would not have been a depression. Better policy not to allow any trader or dealer to make a profit out of a decline in farm products. Says the smaller men on the Chicago Board of Trade favor the bill; that they wanted legislation to prevent "the slugger from breaking the market." Says the bankers' protest of Chicago was signed at the instance of the gamblers on the board of trade, who keep deposits in the banks, and was a "sort of accommodation paper." Error in the bill under consideration, in that it fails to recognize that the owner of a contract for property should stand on the same footing as the owner of the property itself. "The right to buy property for future delivery and to sell it again before or after delivery should in no way be abridged."

Referring to the "gold bill" in the early sixties, which prohibited the short selling of gold (and which was soon repealed), he said the country then was in very little trouble about the surplus of gold, and the short seller kept the price down—as he does on all occasions. Says the opposition to the bill is welcome to all the help they can get out of their reference to that legislation; it is against them. Says the short seller is the "pirate of commerce." The law should place the burden of proof upon the seller to show in all cases that a sale for future delivery was legitimate. Recommends that the provision of the bill requiring all contracts for future delivery to be in writing should be omitted. Reduce the tax to one-fifth of what it is now. Made some other suggestions as to the terms of the bill, and drew a beautiful picture of conditions with the short seller eliminated.

[W. C. BROWN, of Fostoria, Ohio, representing the Isaac Harter Company, one of the largest winter-wheat mills in the country.]

Argued for the use of futures in his business as necessary for insurance purposes when his elevators were filled after harvest. Says they can thus afford to pay more for wheat, and can get more for flour in foreign countries to which they export.

[E. P. BACON, president of the Milwaukee Chamber of Commerce.]

Says the body he represents thinks a committee or subcommittee of Congress ought to travel over the country and make a full examination of all the conditions surrounding, or in anywise connected with, the system of selling property for future delivery, and says the magnitude of the agricultural interests warrants the suggestion.

Favors the system, and says it has been the outgrowth of the requirements of trade resulting from an expansion of the volume of business and the limited time in which the great bulk of the property has to be handled. One reason price of wheat has declined is the increased production of it in this country. All commodities have declined in price a corresponding extent.

[DENNISON B. SMITH, of the Toledo Board of Trade.]

Made an excellent argument, one of the best that was made, from the standpoint of futures, in favor of the system; but as the ground had been so thoroughly covered before him by other advocates of the system, there is little new to be extracted from his remarks. Says the author of the Washburn bill in the Senate and his partner represent an English syndicate of millers, who will greatly profit by the passage of the bill. Says prices to the producer were lower before the birth of the future system than they have been since. Buyer took larger risks then and the margin of profit had to be greater. Presented a protest signed by all bankers, millers, elevator men, vessel brokers, and leading insurance companies of Toledo.

[A. C. RAYMOND, of Detroit, Mich.]

This question ought to be examined by a committee of Congress, in the great trade centers, placing men under oath. Much misinformation now exists. Futures benefit the farmer by making the margin of profit to the grain dealer so much less, the latter thus being enabled to pay that much more for the grain. This system of speculating, trading in futures, stands precisely in the same relation to the grain business of the country as an insurance company to the stocks of the merchants of the country.

[Judge WILBUR F. BOYLE, of St. Louis.]

Argued strongly against the short seller and option dealings; analyzed the first two sections of the bill and commended both; explained "puts" and the system of short selling with great particularity and completeness, and contended that the position of the bear in the market was much stronger than that of the bull, and his power much greater, because he had less to lose and more to gain, and required much less money to operate, having any day of the entire delivery month in which to make deliveries if he chose, while the bull was, of necessity, required to be ready to receive the product on every day of the month until delivery was made, if made at all, the necessary effect being to depress prices.

"Legitimate trading is the selling of that which one owns, not that which one does not own. * * * The party who sells a thing before he acquires it is in fact * * * simply a gambler in that particular transaction."

Maintained that fictitious sales competed with legitimate transactions, saying: "For while there is no competition between them, so far as actual consumption is concerned, the 100 bushels (of fictions) do compete, and vigorously, with the 1 bushel (of actual grain) in regulating the market price of the article; for, when offered for sale, although the party offering it has in fact nothing to sell, there is nothing in the manner of offering it, nor in the sale itself, to suggest that the thing offered is not in actual existence and owned by the party pretending to sell. * * * Hence these offers keep the market continually burdened with an apparent supply, and to the same extent as if it was a real and substantial product."

Asserted that the great decline in the value of farm products during the last decade was attributable primarily to the system of future dealings.

[B. J. GIFFORD, of Kankakee, Ill.]

Says section 2 of the bill should be modified so as to hold the seller, and not the broker, responsible for violations of the law, for the reason that the broker can not necessarily know when he gets an order whether the seller has a license or not.

Section 1 should be amended so as not to interfere with the legitimate business of brokerage.

An additional section should be added to the bill placing the burden of proof on the defendant, in prosecutions for violations of the act, to show his good faith in making a future contract.

[Dr. C. W. MACUNE, representing the Farmers' National Alliance.]

Confined his remarks to the cotton industry. The bill will not interfere with legitimate future contracts. Futures have shortened the cotton season for marketing the crops—"squeezing it out of the farmers' hands"—thus depressing prices. They also permit large dealers to depress the market by immense offerings, and then buy in at prices which they have made, in the meantime frightening off legitimate small investors and the mills. The expenses of the system must ultimately come out of the crop. Believes that when Liverpool wants cotton she conforms to the market of New York, but when she does not New York conforms more to her. The United States produces about three-fourths of the cotton of the world, and the best cotton, and ought to regulate the price of the product. Attributes the present low price of cotton to the tariff, the silver question, and principally to the future system, but not to overproduction. Does not believe there is or has been any overproduction. In New York there is always on hand a surplus of perhaps 10,000 to 20,000 bales of refuse cotton, commonly called "dog-tail," which is held as a menace against a man who wants to enforce a specific delivery of cotton on a future contract. They would get something that was of no account.

[Hon J. H. BRIGHAM, master of the National Grange.]

Farmers asked for this legislation. They do not want their crop sold by some one else before it is harvested. Short sellers understand that the crop must go on the market within 2 or 3 months of the year, and they then undertake to control prices. Supply and demand have something to do with fixing the prices, but short sellers go into the market and fix prices before anyone knows what the supply will be. Does not oppose future sales where the seller has the product or has acquired the right thereto, but objects to sales of something which does not exist. A seller of an actual product has no interest in the lowering of the price after his sale, but a fictitious dealer's interest lies in depressing prices after he has sold; for that is the way he makes money. Referred to the law stopping the short selling of gold, and that gold advanced rapidly, and said the same would be true of wheat or other commodities if the short seller was put out of business. Not asking that dealings in futures be prevented, but that a man be prohibited from selling what he has not acquired the right to sell by ownership or otherwise. Prices of wheat in this country largely control the price the world over, and they would be higher but for "short selling." Legitimate dealers are afraid to pay the market price for wheat lest the "sluggers" on the Chicago Board of Trade break the market.

[L. RHONE, of the National Grange.]

Said statistics showed that during the last decade the wheat crop of the world had increased only at the rate of 4 per cent, while population had increased at the rate of 27 per cent. At the same time prices had decreased at the rate of 32 per cent; consequently some other force than supply and demand regulates prices. Argued that "short selling" was this force, and said it was an arbitrary control of prices. Opposes the sale of an article if it is not owned by the seller, even if he is able to buy it for delivery to comply with his contract. Production of rye has fallen off also. The price of grain has decreased 33 per cent during the last decade.

[C. WOOD DAVIS filed a paper, the argument of which, in substance, follows.]

Future sales of wheat overload the market. Suppressing short sales would make room for investment buying. Futures lower prices by reason of the amount of "phantom" products that are dealt in. "Short selling" is not necessary in order to market the crop rapidly, because it is always possible to borrow 90 per cent of the value of the wheat in the elevators, and reputable bankers say that when wheat is low the margin need not exceed 8 per cent. The only possible benefit that can be derived from it is the insurance to the dealer and brokerage

charges and resulting profits to the men employed in the business. Short selling does not increase consumption, but forces the farmer to market his crop early, thereby overloading the market. Short selling saves insurance, storage, and interest for millers, who, without it, would purchase wheat for stock and relieve the market and thus advance prices. Large sums of money from all over the country are squandered on marginal purchases which would otherwise seek legitimate channels of trade and business; and were it not for this, less money would be required to handle the crop. Corners do not benefit the farmer, because it is impossible to "run a corner" while any considerable part of the crop is in the hands of the producers, and they always occur after the producers have sold their crop, or if not, they are of such short duration that the farmer is unable to avail himself of them. The board of trade could stop dealings in "puts" and "calls" if they would, but they do not want to because 90 per cent of the members of the board deal in them. The real objection that members of the boards have to these dealings is that they are not so profitable as dealings on the open board, and they can not be enforced in the courts. The insurance to the dealer growing out of futures is paid, after all, by the producer, who is the real party that should reap the benefit from it. Quoted from many newspapers to the effect that the grain markets are manipulated by the boards of trade and quotations made regardless of the law of supply and demand.

The real objection of the members of the boards of trade to "bucket shops" is that they have deprived the exchanges of business that they would otherwise get. The methods of both are the same. Combated the statement that "every seller implies a buyer," and said it is not true in effect. Also combats the statement that fluctuations in prices are less violent and sudden under the future system than before, and says that even if the statement were true the result was brought about not by futures, but by the modern system of gathering statistical data as to production and supplies. Spinners desire high prices because they bring a greater percentage of profits. Futures, by depressing prices, force the producer to pay higher rates of interest when he borrows money than he otherwise would. While nominally it may be true that there are as many "bulls" as "bears" in the market, the advantage is with the "bears" always, because they need less money to operate, and only need provide for delivery on any day of the delivery month they choose, while the "bull" must be prepared to accept delivery on every day of the month. The distinction between the operations of the clearing house and the settlement of future contracts is that in the former operations there is actual money on deposit behind every check or draft, while in the latter many of the transactions are admittedly not based on actual products. The commerce of the country that is carried on without the aid of futures compared to that of futures is as 100 to 1, thus demonstrating that there is no necessity for the system.

One of the most injurious phases of this system is the advantage it gives to Europeans to beat down prices before they buy actual products, greatly to the detriment of the American farmer. Futures have a demoralizing effect upon those who deal in them, and are productive of embezzlements, thefts, the betrayal of fiduciary trusts, and other crimes of like character. Farmers do not deal in futures, as was stated before the committee.

The suppression of futures would benefit all classes of the community. "Increasing the purchasing power of the farmers will quicken all the movements of the commercial world."

Submitted table showing the extent of future sales of wheat in New York as compared with the receipts of actual grain, spot sales and exports, the ratio of the former to the latter appearing very large.

The proposed legislation will in no wise restrict legitimate commerce, but is based on the principle underlying commerce that "the owner of property is the one who shall determine its prices, and that only the owner shall exercise the right of selling it or of offering it for sale."

APPENDIX B.

DIGEST OF DEBATE IN THE SENATE ON THE "ANTI-OPTION" BILL.

July 11, 1892, the anti-option bill was taken up in the Senate, on motion of Mr. WASHBURN, who spoke in favor of it.

He explained the essential features of the bill, pointed out that the principal opposition to it came from the professional gamblers in food products and its boards of trade, who by fraud and misrepresentation had drawn to their aid the merchant, the banker, and the business man, to a certain extent, in order to get

themselves in good company, and thus give their own vocation a respectable standing, and showed that the object and purpose of the bill was not in any manner to interfere with legitimate commerce, but only to wipe out the dealing in futures or "short selling," a system which he claimed made it possible to juggle with values and practically eliminate from the commercial world the operation of the "law of supply and demand," and which he characterized as "a system of gambling the most unique, insidious, the most pernicious, and bringing with it the most widespread and disastrous results of any scheme of gambling that the wit or skill of man has ever yet been able to devise."

He stated that at least 90 per cent of the business of the boards of trade of the country were transactions in which the property sold was without ownership for future delivery, and without any intention of delivery on the part of either the seller or the buyer, the transactions thus being merely a gamble as to what prices would be in the future, and affirmed that these gambling transactions had for their object the depression of prices. He asserted that in the face of a shortage in the world's production of wheat and rye, with no increase in acreage, and with a large increase in the exportation of these products from this country, prices for the same have constantly depreciated; giving an abundance of statistics and many quotations and comments from newspaper writers and others in support of his statements.

One quotation used by Mr. Washburn from an article by Robert Lindblom, one of the most intelligent and reputable members of the Chicago Board of Trade, is here inserted:

"What stronger argument can be furnished in favor of the Hatch or Washburn bill than the spectacle that few men, having no wheat, can in 1 hour lower the selling price of the wheat crop \$24,000,000, when foreign markets were stronger and higher and every legitimate influence pointing to higher prices?"

"There are in sight now over 40,000,000 bushels of wheat. The American speculator has bought it all for delivery to him next May. There are over 20,000,000 in sight in country warehouses, and hedge sales have been made against that in Chicago, so the speculator has to buy that too; and as though that were not enough, the professional short sellers, and the sellers against flour and wheat in foreign countries, have sold at least 50,000,000 bushels of wheat in Chicago, which weigh just as heavy as the sale of actual wheat. In fact, it weighs heavier, for while the seller of May wheat against actual holdings has completed his transaction and has no further interest in it, the pure short-seller has an interest in further depressing the market, and in order to do so he resorts to every iniquity known to the trade.

"Is there in all America one sane man who will assert that it is of advantage to the producer to have the supply artificially increased from 65,000,000 to 115,000,000? Is there really anybody so obtuse as to assert that the sale and constant pressure of 50,000,000 artificial supply on the market is of benefit to the producer?"

"It seems there is, but it is gratifying to know that these specimens are found only among that generation which has been developed since the 'short selling' was confounded with speculation.

"The proposed legislation will, without any question, add materially to the selling value of farm products. It will cut off any artificial supply and increase the speculative, while not diminishing the consumptive demand. There can be no real issue as to that."

He then stated that the contention of the representatives of the boards of trade who appeared before the committees of the House and Senate in support of the prevailing practice of "short selling," might be thus summarized:

First. That it makes a broader and more stable market for the products of the farm.

Second. That an increase in the number of buyers results, and this increased competition creates an active market and brisk demand, thereby insuring a higher level of prices.

Third. That while "short selling" does not depress prices, the farmer is benefited by advances in prices which follow bull speculation.

Fourth. That notwithstanding the offering of illimitable quantities by other than owners, prices are determined by the supply of actual products as related to the demand, and while admitting that prices may at times be affected by "short selling," such disturbances are trifling in amount and temporary in character, supply and demand always being the ultimate arbiter of values.

Fifth. That these methods render it much less hazardous for the merchant and banker to handle the products of the farm, and enable them to do so on much smaller margins than would be necessary but for the insurance available through "short selling."

Sixth. That under this system fluctuations are much less frequent and their range less wide than formerly.

Seventh. That it encourages and induces speculation, thereby aiding in carrying and marketing the crops at low cost.

Eighth. That the "short seller" implies the "long buyer," and while the "short seller" may work to depress prices, this is offset by the constant effort of the "long buyer" to advance them, and the forces being equal the law of supply and demand acts just as freely as it would in the absence of the "short seller."

Mr. Washburn combated each of these propositions, citing instances of wide fluctuations in prices on the same day, and maintaining that even on the rising prices on a bull market the farmer was not benefited, because the corner was usually broken and the prices depressed below the normal before the farmer had an opportunity to market his products; that no matter how large the range of gambling transactions became, it would not broaden the market for actual products, nor hasten consumption of the same; that such transactions reduce the number of actual investments; that the contending forces of "short seller" and of "long buyers" were unequal, because prices were often determined by offers to sell when there is no sale, one man being able to put the price down while two are required to advance the price; that prices are often determined by what are known as "wash sales," where no delivery is contemplated, the whole transaction being for the expressed purpose of lowering prices in one market so that actual buyers in another market may get the benefit of such depression; that the "long buyer," when he is forced to liquidate, as is always the case when the time for delivery arrives, becomes a depressor of prices as much as the "short seller."

He cited other crops, such as hay and wool, etc., that were moved without any inconvenience, and in which the boards of trade have nothing to do, as an illustration of the fallacy of the argument that futures were essential in the moving of wheat, cotton, etc., and the other products dealt in on the board of trade.

He contended that nearly all the embezzlements, defalcations, bank wreckings, and robberies and kindred crimes, on a large scale, were traceable to this species of gambling, and cited numerous instances in support of it. He pointed out that the great fortunes of the country, in most instances, were made in this sort of speculation upon the ruin of the many who invested in the bucket shops.

He closed his address with a constitutional argument in favor of using the taxing power of the Government for purposes other than the raising of revenue, and contended that it ought to be used for the suppression of this species of gambling, citing decisions of the Supreme Court and the opinions of eminent text writers on constitutional law in support of the position maintained.

July 19, Mr. STEWART addressed the Senate.

He contended that the proposed legislation did not furnish a remedy for the "disease" of low prices, but said he would support it because it appeared to be desired by the agricultural interests of the country. It would be found, however, that no benefits would accrue. He then made an elaborate argument for the free coinage of silver, contending that that was the only solution for remedying low prices.

July 20, Mr. VEST addressed the Senate.

He characterized the proposed legislation as pernicious, unconstitutional, and class legislation. He said it was a use of the taxing power of the General Government for the purpose of usurping the police powers of the States, and was a mere police regulation. "Has Congress the right, without collecting revenue, to police the people of the United States?" It was a police regulation masquerading under the revenue clause of the Constitution; an attempt to steal away the rights of the States under the guise of the taxing power to support the Government.

He said the bill was for the benefit of the milling interests and pork packers of the country. He asserted that a speculative market makes high prices; that the Liverpool market fixes the price of wheat all over the world, and that this statute would drive the trading in futures to foreign countries, and would put the American producer in the hands of the foreigner, the price of his product to be fixed in a foreign port. He submitted figures to show that from 1837 to June, 1892, wheat has fluctuated in New York from 88½ cents to 109½ cents, whereas if futures had a depressing tendency the result would have been a constant decline. He asked, "If it be possible for the sellers of options and futures to put down the market, why is the market ever permitted to go up? If it is to the interest of the bears to put it down, and they have it in their power to put it down by selling phantom wheat and phantom cotton, why do they not follow the inevitable result of their own selfish interest and continue the depression?"

He characterized the bill as "a bold, naked, legislative highwayman, booted, spurred, and marked as a revenue collector, when in reality it is a police officer;" and said, "there is no pretense that the ill operating sections of the bill would raise a dollar, they are framed for the purpose of stamping out what is considered

a deleterious practice in the States of the Union. If that can be done, lotteries, faro banks, brothels, infectious diseases, all subjects of police power can be taken up by Congress and disposed of without consulting the States."

Mr. DANIEL addressed the Senate.

He opposed the bill as a false pretense by which jurisdiction is claimed over a subject-matter over which Congress has no concern. He asserted that the bill was disingenuous and dishonest; that it did not denounce or interdict fictitious transactions, but licensed them, and that it overrides and wipes out State lines; that if the bill was correct, in principle, then, under the guise of granting license to real-estate agents and under the avowed declaration that the selling of lots and the indulging in booms depreciate the price of land, Congress may take charge of all the real estate in the country; that it taxes bona fide sales of agricultural products by actual owners thereof, and its result would be to permit a corner of all food products, and thus make bigger differences in prices than any of the ordinary transactions of the stock exchange would ever effectuate.

He asserted that the bill was unconstitutional, and quoted Cooley's Constitutional Limitations, page 57, as follows: "Constitutionally a tax can have no other basis than the raising of revenue for public purposes, and whatever governmental exactions have not this basis are tyrannical and unlawful." He contended that the policy of "protection" and the demonetization of silver had caused the fall in prices of agricultural products and lands, and that dealings in options and futures had nothing to do with it.

He referred to "futures," as defined in the bill, and said many of such transactions were perfectly proper and legitimate, giving illustrations. He called attention to the several exceptions contained in the bill to the operation of the definitions of "options" and "futures," and remarked that "the very insertion of so many exceptional cases * * * recognized the fact that in the daily transactions of human life, permeating the marts of business all over this land, such transactions as these that are interdicted here are legitimate and wholesome, and that they are according to the manners and customs of trade." He pointed out that while in one portion of the bill the business of dealing in "options" and "futures" was legalized by requiring the payment of a license tax, by another section of the bill a violation of any of the provisions of it, was punishable by a heavy fine or imprisonment, or both; and sententiously remarked:

"From what code of penal statutes does this free American Republic gather the idea of piling up fines and imprisonments upon trivial transactions which are acknowledged in the body of the act to be legitimate, and which are licensed by the Government and favored by its patronizing power?"

He said the most mischievous of all the transactions from which the farmers conceive they suffer was the cornering of the market in any commodity, and yet that was not interdicted by the bill, but was made more easy of accomplishment.

He termed the bill an abuse of the power of taxation, and argued in favor of the repeal of the tax upon State bank issues.

July 21, Mr. WHITE addressed the Senate.

He characterized the bill as pernicious, vicious, flagrantly unconstitutional, and tending to undermine and destroy the foundations of the Republic. He contended that if the bill passed the effect would be to reduce the price obtained by the producers. He criticised the inquisitorial features of the bill, and declared that the contract which the bill strikes at in the second section is a lawful contract, as decided by the Supreme Court of the United States and the courts of last resort of the States. He said if the theory of this bill is true, every vestige of State autonomy has been wiped off, and the Federal Government thus becomes the most unlimited and arbitrary government on the face of the earth. He argued extensively against the constitutionality of the bill, saying it was an abuse of the taxing powers seeking to abrogate and destroy every limitation found in the Constitution and every reservation in favor of the States; that it was a lie upon its face, because no revenue was expected to be raised from it, and the courts would therefore declare it unconstitutional. He further claimed that it was discriminating legislation.

He said the prohibition of gambling in the products mentioned in the bill would result in a wider range of gambling in all other products, and maintained that stability and uniformity of price were only possible in those articles dealt in on the boards of trade. There was cheating in other lines. Why leave out the New York Stock Exchange and other stock exchanges if the object is to stop gambling where the values traded in were greater than anywhere else?

He referred to the protests of boards of trade of various cities, of the banks and bankers of New York, Chicago, and New Orleans, and commercial bodies throughout the country protesting against the passage of the bill, and said the system of futures prevails all over the world.

The benefits which futures confer upon the cotton planter were thus stated :

1. It gives him a wider, safer, relatively higher, and less fluctuating market.
2. It cheapens the rate at which the producer obtains the money to make his crop by enabling the factor and all who deal with the producer to sell by futures the product with which the producer is to pay them, thus diminishing their risk and enabling them to reduce their charges to the producer.
3. It has diminished the charge of the middlemen by drawing the producer and consumer together, by enabling the buyer to sell for future delivery, and buy the producer's crop to fill his future sale already made.
4. It has multiplied buyers and brought them to the door of the consumer.
5. It has multiplied investors by enabling them to buy actual cotton and sell futures against it at a small advance to cover interest and charges, thus making the investments safe. The investor, having sold for future delivery against his purchase of actual cotton, is absolutely safe, is submitted to no risk of fluctuation in the market, and therefore can afford to pay a better price to the producer.
6. It has enabled the spinner to pay a better price to the consumer. He buys his cotton for consumption by means of a future contract, thus obviating the risk of a decline in the market. He sells the goods which he is to make from the cotton by a future contract, thus insuring a profit and thus enabling the spinner to do his business on a narrower because a safer margin of profits. It has brought the cotton fields of the South nearer to the great centers of American and European consumption by diminishing the risk, thus reducing the difference in the price which formerly existed between cotton in the field of the producer and that cotton at the door of the consumer.
7. It has relieved banking capital, thus leaving more money to assist the planter in making his crop.

He supported these statements by a comparison of the state of the cotton trade before the existence of futures with subsequent conditions, and contended that futures had been a "merciful blessing" to the cotton planter and the cotton trade.

He filed a telegram from the cotton factors of New Orleans (the sellers of cotton) protesting against the passage of the Hatch bill, and cited statistics of cotton production and exports of the same to show the benefits of futures.

Referring to a table showing the total sales of futures in New York and New Orleans from 1880 down, he argued that the figures demonstrated that the greater the values are of "future" sales to the volume of the crop, the lighter the average price was for spot cotton, and claimed that this demonstrated that prices were always higher in an active market, and that the more trading there is, the more is received for the thing traded in.

He controverted the argument that the effect of future dealing is to cause the farmer to sell at low prices, and as soon as his products are all sold the price is then boosted up, and asserted that it was untrue, citing statistics in support of his views.

He said futures have relieved the American producer from the grasp of the British spinner; have decreased the shipping margin between the New York and Liverpool markets, thus, to that extent, assisting the producer.

July 23, Mr. HANSBROUGH addressed the Senate.

He said the producers were in favor of the bill, and also the commission merchants, who were satisfied with small profits.

He called attention to the legitimate demand for wheat created by the failure of the Russian crop, and stated that on the strength of that demand the manipulators advanced prices 10 cents per bushel, after which it was suddenly decreased below the normal rate, the farmers not getting any of the benefits of the advance, and said the profits on the advance were reaped by the speculators.

He said that Partridge and others in December, 1891, began beating down the market from 95 cents to 75 cents, making immense fortunes thereby.

Replying to the argument that "futures" and "options" were necessary for the marketing of the products of the farm, he said that of the \$4,000,000,000 worth of produce, the annual output of the American farms, only about 80 per cent of such staples are sold by options, and that the option dealer handles less than 10 per cent of farm produce; yet he fixes prices by making fictitious sales of amounts 500 times greater than the actual output.

He controverted the argument that the production of the country is increasing so rapidly that only by the modern methods of options can the products be handled and marketed, by citing statistics to show that such were not the facts, the acreage not increasing but decreasing, while population is increasing. He maintained that the chief cause of depression was dealings in options and futures, and not the demonetization of silver, as contended by some, citing tables and statistics in support of his assertion.

Mr. Hiscock addressed the Senate.

He said the bill invades the rights of the States. If the evils complained of exist, legislatures of the States were competent to deal with them. He defended the men engaged in the business of "futures" and "options," and contended that because evils were possible under the system of future dealings was no reason why the system should be anathematized, illustrating by saying that because counterfeiting was possible and was often resorted to was no reason for abolishing the currency; that because embezzlements by young men often occurred was no reason for not employing the young; that because men were often tempted into wild speculations and ruined themselves and others, was no reason for suspending business; and that because in the Harper corner at Chicago the Fidelity Bank was wrecked, was no reason for striking down the Constitution or evading the rights of the States. He said, "If business methods are to remain the same for all time, then do away with railroads, telegraphs, telephones, and other modern inventions for the facilitating of business;" and that "Every Senator who votes for the bill invokes a constitutional provision unconstitutional to suppress what he thinks is wrong."

He contended that the taxing power can not be carried to the extent of enacting a law which does not tax, can not tax, was not intended to tax, but to prohibit lawful contracts; and that the bill was unconstitutional.

He said that commerce from the earliest ages has grown upon the contracts for future delivery, and continued: "Whenever you limit the dealings in wheat or corn to the actual article in existence, and whenever you provide that it must be collected at great shipping points to meet our foreign commerce; whenever you provide, as this bill does in theory, that it must go into elevators somewhere, as it must, where it can repose in large volume that large transactions may be made in it, I say that you lay the foundation for one of the most gigantic, cruel and rapacious trusts which could exist." The whole product would be controlled by a syndicate. The bill is the basis of the most gigantic trust that ever was conceived by human intelligence. Put it into the power of the elevators of this country, from Buffalo to Chicago and Milwaukee and Minneapolis, to collect the wheat of the country, and their line will be that of a great anaconda stretching from the East to the West, destroying whatever is within its folds." He said that futures were an insurance, and were beneficial to the producer; that prices are made at the point of largest distribution for consumption, and that if boards of trade were abolished in this country, prices would be fixed abroad.

July 25, Mr. GEORGE addressed the Senate, confining his remarks to the cotton industry.

He said the bill was unconstitutional as written, because on its face the object was not to raise revenue but to prohibit certain practices. He called attention to the distressed state of the cotton industry in the South, and contrasted it with the prosperous period between 1850 and 1860, before futures were heard of. He said that options and futures in cotton were carried on only in five places in the world: New York, New Orleans, Liverpool, Havre, and Bremen; and that there were only 300 members in the New Orleans exchange, many of whom do not trade in futures—no one else but members of the exchange can trade. The exchange is composed of 9 classes:

1. Commission merchants who sell cotton for planters.
2. Exporters who buy cotton for spinners and merchants in Europe.
3. Merchants who buy cotton for spinners in the United States.
4. Bankers through whom all bills of exchange drawn against cotton are negotiated.
5. Ship agents who represent the great fleet of steamers and sailing vessels by which the cotton is carried abroad and to domestic ports.
6. Insurance agents who arrange the insurance on the bulk of the cotton seeking a market through this port.
7. Cotton brokers.
8. Expert judges of the raw material, who buy the cotton from representatives of the planters for the merchants who ship to Europe and to American spinners.
9. Future brokers, who buy and sell contracts for forward delivery for account of members of the exchange, or for merchants and spinners in Europe and the United States.

He maintained, consequently, that there was no restriction upon the natural rights of freedom of contract and trade. He asserted that there were 270,000 bales of spot cotton sold in New York for the year ending May 31, 1891, to 26,389,500 bales of futures or—100 to 1—and practically the same for other years; that the ratio of futures to spots ran as high as 2,100 to 1 in a day; and that this was not commerce, but gaming; that there were 40 bales of middling cotton sold

in New York to 1 raised in the United States. He said that the first three sections of the bill, on a fair construction, could not be considered to apply to any other class of contracts than those which the courts have decided are void—when there is no intention to deliver goods; quoting legal authorities.

He analyzed dealings in futures and the testimony taken by the committees, and declared that all these transactions were mere wagers, as delivery was not contemplated in but few instances.

Replying to the argument that futures prevent violent fluctuations in prices, he contended that the creation of the Agricultural Department and the other means of disseminating information in respect to the amount and condition of the growing crops were the conditions which prevented violent fluctuations in price, and not futures. Such things, he said, did not exist in the decade from 1850 to 1860, which had been cited as the period of great fluctuation. He showed the vast amount paid out for commissions to brokers on the exchange, and cited the testimony of Mr. Bloss, of the New York Cotton Exchange, to prove this sum came out of the cotton crop, which he figured at about \$3 a bale.

He believed the bill as drawn was unconstitutional, there being no power under the taxing power of the Constitution, but ample power under the commerce clause, to prohibit fictitious dealings, which are not commerce, but are obstructions to commerce and are in restraint of trade, citing authorities in support of that proposition. He contended that Congress is the proper and final judge to determine what is an obstruction to or restraint on commerce, citing the *Wheeling Bridge* case, (9 How., 647; 13 How., 518).

Mr. HUNTON addressed the Senate.

He maintained that dealings in options were only one of the causes of the low price of farm products, and that the tariff and the demonetization of silver were greater causes. He believed the bill constitutional, or at most doubtful, and said he was willing to give the benefit of the doubt to the producer. He preferred the George substitute, but would vote for the main bill. He inserted, as part of his remarks, numerous newspaper articles against short selling.

July 27, Mr. COKE addressed the Senate.

He thought the bill unconstitutional, and not warranted under the taxing power of the Constitution, citing authorities. He contended that it was not uniform, referring to the exceptions in section 2, and said he favored the George substitute. He claimed it was class legislation only in the sense that it is directed against a criminal class.

Mr. MITCHELL of Oregon.

He said he would refer the doubt as to the constitutionality of the bill to the Supreme Court. He argued in favor of its constitutionality and said the taxing power of the Constitution was ample; that the tax was uniform, in that it is laid on the same thing at the same rate, and is coextensive with the limits of the United States, citing judicial authorities.

Quoting from Mr. White in reference to *Veasie Bank v. Fenno*, the State Bank case, (8 Wall., 533), that "If a tax, it was not illegal, because Congress had the power to prohibit that which it had the right to prohibit under another clause of the Constitution," he said that if Mr. George was right that Congress, under the commercial clause of the Constitution, had the right to prohibit options in futures, then it is clear the taxing power may be used to tax them out of existence.

Mr. PALMER addressed the Senate.

He quoted the statutes of Illinois against gambling in grain, and bucket shops, and said the bill was a perversion of the taxing power, not to be justified by any sound system of reasoning; that it was not uniform in section 11, and was an interference with the police power of the States. The Illinois law, he said, was enforced as far as public sentiment warranted, and a Federal law would not be better enforced.

He asked the question, "Can Congress define and punish gambling in the States?" and said this was just what this bill did. He maintained that the tendency of the bill, aside from its unconstitutionality, was to encourage that growing feeling toward social helplessness and toward dependence upon despotic agencies outside of and beyond the people themselves; that it was a substitution of despotic means for the enforcement of the law among the people, who have the right to enforce their own laws by their own agencies, and that it required the Federal Government to do what the States could and ought to do.

July 28, Mr. PADDOCK addressed the Senate.

He favored the bill on moral grounds. It would distribute the visible supply of grain more widely and generally over the country among the mill and other large consumers and wholesale grain dealers, thus retiring from the market a very large portion of each year's crop, and would help to steady the market. It would reduce

the vast army of fiction dealers who are now supported by the producer or consumer, or both. Speculation would be reduced to actual products and would not be under the control of fictionists. He called attention to the enormous sales on the exchange as compared with quantity on hand, and said if these dealings were necessary as a support to the market for the products dealt in, why was it that the other great staples—wool, hay, etc.—have an infinitely more steady, reliable, and satisfactory market than the former.

He controverted the argument of the opposition that "when the farmer is marketing his wheat in large quantities all futures or speculative values are higher relatively than cash wheat," and cited statistics in support of his contention. From these statistics he argued that all outside investments were destroyed, because the short seller could and did intimidate the investment buyer by offering wheat for future delivery for less than its present value, and thus reduced the price, and the price of futures thus determines the price of actual commodities. He said the tendency of short selling is to confine speculation in actual grain to those who desire to secure a storage charge which the outside investor can not afford to pay, and this throws the control of the market for actual wheat into the hands of the miller, the exporter, and warehouseman and drives the investor from the actual market for the benefit of those who own storage rooms of great capacity and the owners of public elevators. He said a steady market, with infrequent fluctuations, regulated by the law of supply and demand, was most desirable to all legitimate trade and business. He incorporated certain correspondence into his remarks going to show that European merchants dealt in futures on exchanges in this country in order to hedge their contracts in other countries for the purpose of depressing prices here, and then buying up at such prices actual products for European needs, and that this country was made to underwrite and assume all the hazards of European dealers in all parts of the world without receiving the slightest compensation therefor. He termed the present system detrimental to the railroads and the banks, because of the sporadic movements of actual products which are caused by it.

Mr. TURPIE addressed the Senate.

He said the taxing power alone was not equal to the case, but the power was ample under the commerce clause, and Congress therefore has the choice of means to cure the evil; that "when affirmatively and independently from another and a different source power is given to the Federal Government to deal by act of Congress with a subject, Congress has the choice of methods and may proceed directly by a penal prohibitory enactment, or it may proceed indirectly by a measure of taxation, and both are equally legitimate; and that the history of legislation and jurisprudence upon these questions will show this." He maintained that the practices were destructive of interstate commerce.

DEBATE IN THE SECOND SESSION OF THE FIFTY-SECOND CONGRESS.

December 12, Mr. GEORGE addressed the Senate.

He called attention to the fact that since last session efforts had been made in the various cotton markets to depress the price of cotton, based upon the fact that the bill was pending in the Senate, and said that, in view of the vast aggregation of wealth in the country which had injected new methods into business, the doctrine of *laissez faire* was no longer proper.

If future dealing in cotton is so essential to the interests of the farmer, why are such dealings confined to but two places in the United States when at least seven seaports of the country handle more of the actual commodity than either one of those two places? Described the New York Cotton Exchange, which, he said, was composed of 454 members, the initiation fee being \$10,000. No man but a warehouseman licensed by the exchange can receive cotton. Weighers, samplers, and even truckmen must have a license from the exchange to handle the product.

It regulates the entire business to suit its own pleasure, and the entire cotton business of the country is at the mercy of the New York Cotton Exchange. The committee on quotations fixes the price at 2 o'clock for the next day, when the market does not close until 3. It fixes prices on days when there is no market. The revision committee meets nine times a year, and fixes prices, and fixes the relative price of other grades of cotton.

No farmers are in the body. It also has judicial powers, power to summon witnesses, and settle all disputes between its members free from the jurisdiction of the courts of New York or of the United States. By charter, the award of the arbitration committee of the exchange can be filed in court, and becomes the judgment of the court, and the court is bound to enforce it.

He said that, because of the action of the Senate the day before, the exchange forced cotton down from 2 to 5 points, while corn and provisions went up in Chicago.

He said the brokerage on futures was about two and one-half times as much as was received for actual cotton during the same period, and asked: "Is not the community paying too high a price for distributing cotton through the instrumentality of futures when it takes the gross value of 2½ bales to market 1?"

Referring to the statement of the advocates of futures, that the marketing of the cotton crop has become so interlocked and interwoven with the future system that if you touch the future system you disorganize the real business of the country, he said if this be so, then the actual cotton must pay the expenses of marketing the whole of it—commissions and all—on futures.

He figured out that to market the crop of 9,000,000 bales it would cost for brokerage, insurance, interest, etc., \$19,000,000, and asked who paid that if it did not come out of the crop. Referring to the figures which show futures to be lower than spot cotton on the same day of the month, and to the fact that in futures only a margin is required while for spots cash is necessary, he said the speculator would naturally deal in futures, thus lessening speculation in spots, and the demand for spots was thus left wholly to the consumer.

He cited letters of cotton factors who were opponents of the bill showing that the market had gone down by reason of futures, and quotations to show great fluctuations in the market, and said the alleged benefit of futures was not made out. Treating of what is known as "hedging," he said that on every such transaction there was a loss of the commission at least, and ridiculed the claim of the Memphis Cotton Exchange that hedging was therefore beneficial to the trade.

Mr. PALMER addressed the Senate.

He criticised the definition of options and futures in the bill, and said "options," as defined by the bill, were not the options of the courts, and that "futures" of the bill embraced legitimate contracts in all branches of business. He made a constitutional argument against the bill as interfering with the police powers of the States, and said it was not a revenue bill, and that there was no power in the Constitution to support it.

He attacked the tenth section of the bill as requiring parties to give evidence against themselves, and therefore violative of the Constitution and of common right. He attacked the fourteenth section as giving to ministerial officers the right to make laws.

Mr. PEPPER addressed the Senate.

He called attention to the universal demand from the farming interest for legislation on the lines of the bill, citing special instances. He agreed with Senator George on the constitutional question that the power to prohibit is derived from the commerce clause of the Constitution. He asserted that the farmer is at the mercy of the middleman, and that the profits of futures come out of the producer.

He said the only distinction between this and other forms of gambling is one of degree. He did not believe the bill a panacea for all the ills of the farming interests, as competition and invention and the reduction of the volume of money have also contributed to depress prices.

January 4.

Mr. SHERMAN believed the taxing power sufficient for the purposes of the bill.

Mr. WHITE moved to strike out the proviso at the end of section 2. His objections were that, inasmuch as the bill admitted the legality of certain future contracts when carried on by a particular class of people, at certain places, it was class legislation of the worst type to forbid them to another class of persons at a place where quotations were posted, thus making the legislation partisan and not universal, illustrating his argument by referring to the county fairs and the other market places which have come down from the remote past as centers of business.

January 5, Mr. VILAS addressed the Senate.

He said that the bill was unconstitutional, its admitted object being to suppress and destroy the transactions condemned in it, and not to raise revenue: it was unnecessary, because the things attacked—that is, the purely gambling transactions are already illegal under State laws. The taxing power was not broad enough to cover contracts made and to be performed in the State. Legislatures of the State should determine what are lawful contracts and what are not. He distinguished the case of *Veasie Bank v. Fenno*, (8 Wall., 533), which construed the statutes taxing the issues of State banks, and the oleomargarine statute from this: The first was "a means properly adopted by Congress to protect the currency which it had created, namely, the legal-tender notes and the national-bank notes;" and the latter is a revenue bill. He maintained that "no instance will be found of the

exercise by Congress of the ostensible power of taxation, not to raise money, but to prohibit or suppress the doing of something in which the true source of the power of such inhibition is not referable to some other grant of the Constitution."

He attacked the George substitute as also unconstitutional, and said the argument in support of that was--

1. Congress may directly interpose to suppress any domestic transactions sanctioned by the laws of a State, and conducted by its own citizens wholly within its borders, although in no wise interstate or foreign dealing, not even amounting to commerce at all, if their indirect effect in some manner unfavorably influences or, in his language, obstructs or restrains other transactions, whether by the same or other persons, which are, or might become, interstate or foreign commerce.

2. Congress may conclusively assert that any such domestic intra-state transaction does unfavorably influence interstate or foreign commerce, and thus, foreclosing inquiry of the fact by the courts, invest itself with legislative power to denounce and suppress the domestic transaction which otherwise citizens of a State might rightfully engage in, protected and sustained by its laws.

He contended that both propositions were untenable. The power to regulate, under the commerce clause of the Constitution, extends only to the means and implements of such commerce. On the second point, he declared the Wheeling Bridge Case does not sustain Mr. George's position.

Even admitting that the system of dealing in futures operates to depreciate the price of the commodities in question, it does not follow that thereby interstate and foreign trade in them is obstructed, because the more the price of an article of common desire is lowered the more extensive becomes its use and the more active the traffic in it. Results show no obstruction--no necessity of legislation. Power of the legislatures of the States to cope with the evil ample.

Mr. VILAS offered the following amendment: In section 2, after line 15, insert "And does not in good faith intend to purchase and deliver the articles contracted to be sold and delivered according to the terms and requirements of such contract."

Mr. WHITE addressed the Senate on the amendment.

He said the amendment does not go as far in recognition of future contracts as the decisions of the courts, which hold such contracts to be invalid only when neither party intended to deliver.

Mr. GEORGE replied:

The amendment would destroy the bill. The testimony shows that the future sales of cotton are equal to 4 to 1 of the actual crop, and yet everyone said all those sales contemplated a delivery, which was utterly impossible; therefore, with the amendment in, the bill could not be enforced. He asserted that, notwithstanding the transaction or the thing prohibited by Congress may be upheld by State law, if, in fact, it be an interference with interstate or foreign commerce, it is within the competency of Congress to make a regulation annulling that which is good under the State law; and declared every contract on the New York Cotton Exchange a gambling one.

Mr. HOAR addressed the Senate.

If this bill be sound in principle, there is not a transaction of mankind which it is not within the constitutional authority of Congress to regulate, unless it come within the direct prohibition of what we may call the bill of rights, or unless it come within the direct affirmative action of the powers of the States.

Mr. GEORGE replied that the evidence taken by the committees showed that the "future" system, so far as cotton is concerned, has been so interwoven and interlocked with the commerce in cotton that if we destroy it we disorganize the whole cotton trade. Therefore that brings it within the competency of Congress to declare that the same is an obstruction to commerce.

Mr. PALMER cited the practice in Illinois and other States, of notes payable in property at the market value of the property when due, and said they would be illegal under this bill. The bill comprehends too much; it not only refers to gambling, but goes into the minutest transactions of life.

Mr. PUGH.

According to the testimony before the committee, 90 per cent of the future contracts in New York and New Orleans in the last 20 years would be protected by the amendment proposed, and it would take the life out of the bill.

Mr. VILAS compared the cotton exchanges, in the vast amount of their future sales, to the New York Clearing House, where millions of dollars' worth of business is transacted, and yet little money is handled.

Mr. CALL favored the bill on moral grounds, and believed it constitutional, but preferred the George substitute.

Mr. WHITE addressed the Senate.

He described the present method of marketing the cotton crop in the South, and asserted that unless the amendment proposed by Mr. Vilas was adopted the merchant would not be able to advance money to the cotton farmer to make his crop, and the result would be that the farmer would necessarily have to become a speculator and sell his crop before it was grown.

Mr. VEST addressed the Senate.

He said the theory of the substitute is that absolute power exists in the Congress of the United States to declare that any practice or pursuit in any State of the Union is an obstacle to commerce, and the Supreme Court is inhibited from making inquiry and deciding upon the truth of that fact. He cited judicial authority against that theory.

Upon the theory that dealings in options and futures diminished the price to the producer, then commerce should naturally increase, since low prices make most buyers.

Mr. HOAR addressed the Senate.

He said the bill infringes the rights of the States; it is not a tax bill, as no tax is expected to be raised, none contemplated, but only the suppression of the practice. Quoted *Gibbons v. Ogden*, (9 Wheat., 1), as follows:

"Congress is not empowered to tax for those purposes which are in the exclusive province of the States. When, then, each government exercises the power of taxation, neither is exercising the power of the other." Cited many decisions of the courts in his argument against the constitutionality of the bill as a taxing measure.

He dissented in toto from Judge Cooley's view, expressed in a magazine article, as to the right to tax the Louisiana Lottery out of existence.

Addressing himself to the George substitute, he contended that it was not constitutional, illustrating his argument by many citations, and said the effect of it would be for Congress to take charge of every transaction in business which in any way even remotely lessened the amount of interstate or foreign commerce.

"To say that the cost of brokerage on fictitious sales comes out of the crop is no more logical than to say that every bet at a horse race is paid by the owner of the horse." The consequences are too remote.

Legislatures of the States have ample power to prohibit these practices if the people of those States so desire.

Mr. VEST, referring to Judge Cooley's magazine article maintaining that Congress could tax the Louisiana Lottery out of existence, read a query put to Judge Cooley by David A. Wells, as follows: "If your contention be correct that the Congress of the United States can tax out of existence any lottery within any State, what prevents the Congress of the United States from taxing out of existence in any State saloons, opium joints, brothels, and other institutions which they deem deleterious to the public morals?" and said that the query had not been answered. He said if Congress has this power, then what police power is left to the States?

Mr. PLATT addressed the Senate.

The bill is unconstitutional. Congress has power to lay and collect taxes not penalties; it is not authorized to confiscate. It never has been held that anything is a "tax" which does not contemplate the raising of revenue for the purpose of the Government; citing many authorities on taxation to support his statement. Whenever the legislature undertakes to take the whole of a man's property it is not taxation, but confiscation pure and simple.

The bill is not an exercise of the taxing power, because it does not intend to raise revenue, and the primary and essential purpose of a tax is to raise revenue.

Referring to the George amendment, he defined interstate commerce, under the decisions of *Gibbons v. Ogden*, (9 Wheat., 1), and *Coe v. Errol*, (116 U. S., 517), and asserted that this amendment undertook to deal with business and products of the State before such became subjects of interstate commerce, within the meaning of those decisions.

He said, "No dealing, legitimate or illegitimate, in any property in a State can in any way be an obstruction to commerce between that State and another State; no method of purchase, legal or illegal, no method of transacting business, so long as the property is in the State and not delivered to a common carrier for transportation from that State to another State, can in any way be an obstruction to, or an interference with, or an injury to, commerce which shall flow from a State to another State;" and asked, "Is a contract of sale within a State commerce between the States?" And if not, then it can not be prohibited or regulated by Congress. He asserted that the theory of the amendment was, that before the articles which are the subject of the contract of sale have in any sense become

subjects of interstate commerce the contracts themselves may be an injury to interstate commerce, and may therefore be properly suppressed and made criminal. If that be true, there is no contract of sale that may not be made criminal, if only Congress will declare it so, and the further contention be correct that such declaration by Congress can not be questioned.

The limit of legislative discretion in regulating commerce among the States does not go beyond the commerce itself among the States, and that does not begin to exist until the goods begin to move from one State to another by the ordinary lines of transportation. If the theory of the bill be correct, then the liquor traffic, theft, horse racing, and all gambling in the States may be suppressed by Congress.

Nothing in the testimony shows that the farmers will derive the slightest benefit from such legislation. This is the first instance in the history of proposed legislation the avowed purpose of which was to advance the price of products to the consumer.

Does not believe the price of wheat or cotton is much affected by these dealings. There may be fluctuations from day to day, but the average annual price of any of the cereals is not affected. If the bill passes, then prices will be fixed by the millers and the commission merchants, who, when their elevators are full, will say they do not want any more; and then what becomes of the market?

Mr. STEWART.

Congress can not enact a law, under the taxing power, the primary object of which is to control business in the States. The object of this bill is not to raise revenue, but to destroy a business.

Mr. WASHBURN, in reply to a question, said: "The object of the bill is to destroy a system of manipulation by operators on boards of trade, which creates abnormal and unnatural conditions, so that the great products of this country are not sold on the basis of supply and demand."

Mr. STEWART continued, and said that the passage of the bill would put it into the power of the millers and elevator men to combine and regulate prices at their pleasure. This was denied by Mr. Washburn.

Mr. STEWART then argued that the fall of prices was due to the demonetization of silver.

Mr. VILAS. Courts should determine whether such practices are obstructions to commerce and also whether they are illegal. "It is a judicial question."

Mr. GEORGE, in reply, cited the "anti-trust law," which was a legislative definition of a trust that was declared to be illegal.

Mr. WHITE'S objection to this was that there was a distinction between calling a thing "illegal" and saying that it "impeded commerce."

Mr. GEORGE also cited section 5 of the interstate-commerce law, which declared pooling unlawful. He asserted that these dealings constitute an interference with, and an obstruction of, interstate and foreign commerce.

Mr. GRAY denied that the evidence showed that, and contended that the mere fact that prices might be raised or lowered by the board of trade did not prove that interstate and foreign commerce had been obstructed or interfered with; and he further claimed that the dealings referred to had not been shown to reduce the price of commodities dealt in or the profitableness of commerce. But even if they did, Congress would have no power to legislate in respect of any transactions of purely State commerce.

The theory of an amendment offered by Mr. Vilas is that Congress is not the judge of what constitutes an obstruction to interstate and foreign commerce.

Cited decision in *Wheeling Bridge case*, and *Gibbons v. Ogden* (supra), and other cases, and various statutes to controvert that theory, especially acts regulating passenger traffic on shipboard between American and foreign countries, and reconstruction acts, in the matter of which the Supreme Court said Congress was the final arbiter.

Mr. CHANDLER addressed the Senate.

Thinks either the taxing power or the commerce clause sufficient warrant for the bill. Power the same as that to impose protective duties. Prefers George amendment. Does not believe the bill will accomplish what is desired. Maintains that the following taxes might be levied for revenue; and if so, can they not be levied for another and distinct purpose:

1. Duty on imported whisky, wheat, cotton, or tobacco.
2. A tax on persons engaged in the business of importing those articles.
3. A tax on those articles produced in this country.
4. A tax on all persons engaged in the business of making contracts to buy and sell those articles not in their possession at the time of the contracts.
5. A tax on all persons engaged in the business of making contracts to buy and sell those articles in their possession at the time of making the contracts.

Mr. MILLS addressed the Senate.

This is a matter of State regulation wholly. If the National Government has power to suppress such dealings it would also have the power to encourage them if it chooses to do so, against the will of the people of any State.

"If the amendment written upon the face of the bill that brands it as a regulation of commerce can not be traversed, then Congress is a legislative despotism. The bill is not a regulation of commerce, and does not and can not advance the prices of any product embraced in it. Prices are fixed by supply and demand."

Replying to the argument that the charges on the cotton exchange come out of the cotton, he said: "Where does the money come from that is staked on cards, horse races, and elections—out of the manufacturers of cards, the owners of horses, or the voters at elections? No. It can no more be said that the cotton grower pays the charges of this business than it can be said that he receives the profits made by the successful speculator."

"I want to know how a charge of \$5 made on a cotton contract in New York can come down to Texas and locate itself on a bale of cotton belonging to one of my constituents? If this can be proved, then it is in the power of the people everywhere to put charges at their will to any amount on the property of others without their consent."

"Future dealings have grown out of the development of civilization by the necessities of that civilization. It comes like the bank, the bank check, the bill of exchange, the clearing house, the railroad, the telegraph and telephone. What is a contract to buy and sell cotton for future delivery but a commercial contrivance by which credit is made money and made to contribute its resources to aid in the work of distribution?"

He termed the transaction a "capitalization of credit," and said each time the contract is sold a benefit is conferred. In moving the volume of annual commerce every dollar in the country is promised twenty-five or thirty times, and the whole country receives an incalculable benefit.

Mr. HISCOCK addressed the Senate.

He called attention to the 10th section as unconstitutional, in that it required a party to give evidence against himself; and cited *Boyd v. United States*, (116 U. S., 616), in support of his position. The bill would become the basis of the most gigantic trust the country has ever seen.

Mr. WHITE addressed the Senate.

The George amendment is more pernicious than the original bill. If its theory be true, then Congress can say that too much acreage in cotton impedes interstate commerce, and could restrict the acreage. Congress could declare that any State government is inefficient and that its reflex result impedes interstate commerce, and could therefore wipe out the State government and put any other in its stead, and where could the line of distinction be drawn between the constitutionality of that bill and this?

Facts prove the declaration of the amendment untrue. Prior to futures the amount of interstate commerce in cotton in the first 3 months never exceeded 30 per cent of the crop. Now it is 71 per cent in the same time. Future dealing is not new, but is a part of the common acquisition of the human mind for the last 200 years.

He called attention to the number of cities in all civilized countries where such contracts are carried on. They existed in France for 200 years; in Florence since the fourteenth century; and in Amsterdam, since the seventeenth century. They come from a contract known to the ancient law as the "safe arrival of a vessel," whereby a man sold the cargo on a vessel in a foreign port, the cargo not being loaded and the vessel not having sailed, paid for on a sliding scale, having a certain standard as a basis of calculation. Those contracts were transferable, and were often negotiated.

Such contracts are universal in commercial countries and are approved by writers on political economy. There is a natural right to make them, and to strike them down is to strike down liberty itself.

He showed from tables that the price of spot cotton in New Orleans in the first week of every month of the decade from 1850 to 1860 averaged $\frac{11}{100}$ cent more than in the decade from 1880 to 1890, while in the decade from 1850 to 1860 there were higher prices for everything than in the last-mentioned decade.

He showed from the report of the royal commission that the decline in price in cotton was less than in the other one hundred and odd other articles, so that cotton was relatively higher in the last decade than in the first. In the period from 1842 to 1861 the prices of cotton averaged $\frac{81}{100}$ cent lower than from 1879 to 1892. The lowest price in the first period for 5 years was lower than in the period from 1890 to 1892. The depression in the season of 1891-92 was caused by overproduction. Spinners could not consume it, and that left a large surplus for next season, which

could only have been taken care of by the system of futures. In the early period producers were at the mercy of the manufacturers; cited statistics to prove that since the existence of futures the cotton market has been steadier and the fluctuations enormously less than before, and said that fact was admitted by many who favored the bill.

The price advanced steadily in the face of the largest future sales ever recorded; hence futures did not lower the price. Futures, as a rule, are lower than spots for the month in which the futures are due, and the early months thereafter; and are higher than spots in the future months after that period up to the end of the crop year.

He showed by figures that futures sustained the market even in years of over-production. The charges are only 12½ cents a bale in the New York Cotton Exchange, instead of 97½, as Mr. George had stated. If cost come out of producers then ought they not to be credited with the profits?

Volume of futures bears no larger relation to the volume of the product than is borne by almost every product in the world—all of which are sold several times over.

He compared the exchanges for the sale of products to the clearing-house of banks, when 4 or 6 per cent often is sufficient to liquidate the differences; and said the produce exchanges were the clearing-houses for products in Europe.

If the committee of 9, called the quotation committee, referred to by Mr. George, has the power contended for of fixing prices, then they are benefactors, because cotton has retained its price relatively better than many other products.

Liverpool is the great cotton market of the world, because it is the great center of consumption. It receives the surplus of the crop of the whole world. Futures are thought to be larger there than New York, probably twice as large. No record is kept. New York is a higher market than Liverpool, relatively. New York is a bull market; Liverpool, a bear market.

Mr. WOLCOTT addressed the Senate.

Thinks the bill unconstitutional, but said if it is passed and declared constitutional it will lower prices. The real demand for the bill comes from the millers and elevator-men. For a week or a day a corner may prevail, but the great law of supply and demand will in the end regulate prices. The bill is a lie on its face.

Mr. GRAY addressed the Senate.

Believes both the original and the George substitute unconstitutional.

Mr. GEORGE. Believes Congress to be the final judges of what are obstructions to commerce.

Mr. GRAY.

The power is given to Congress to regulate commerce as it pleases, but not to regulate anything else. When Congress thus has jurisdiction, it may declare or consider anything an obstruction; but it can not acquire jurisdiction by declaring certain things to be obstructions.

The power which the Supreme Court can exercise when an act of this kind is brought before it is, first, to determine whether the subject-matter of the regulation is within the scope of the commercial clause of the Constitution. When it has determined that question affirmatively, then any regulation which Congress makes is entirely within Congressional discretion, and the Supreme Court can not pass upon its wisdom or unwisdom, or as to whether it be an obstruction or no. Cited the decisions of the Supreme Court in favor thereof in *The Daniel Ball*, (10 Wall., 557), and *Veazie v. Moor*, (14 How., 568), and quoted from the latter as follows:

"Nor can it be properly concluded that because the products of domestic enterprise in agriculture or manufactures or in the arts may ultimately become the subjects of foreign commerce, the control of the means or the encouragements by which enterprise is fostered and protected is legitimately within the import of the phrase foreign commerce, or fairly implied in any investiture of the power to regulate such commerce.

"A pretension as far reaching as this would extend to contracts between citizen and citizen of the same State; would control the pursuits of the planter, the grazier, the manufacturer, the mechanic; the immense operations of the collieries and mines and furnaces of the country; for there is not one of these avocations the results of which may not become the subject of foreign commerce and be borne either by turnpikes, canals, or railroads from point to point within the several States toward an ultimate destination like the one above mentioned."

He said this bill is the same as that case. He explained the difference between the interstate-commerce act and this bill. In that act it was interstate commerce that was taken cognizance of, and jurisdiction of Congress thus attached; consequently the power of Congress to say what was an obstruction was supreme.

Here the contract is not made by those engaged in interstate commerce; it is not concerning the transportation of commodities from one State to another. It is precisely like *Veazie v. Moor*, (supra).

He cited insurance contracts in *Paul v. Virginia* (8 Wall., 168), which were held not to be interstate commerce, because they were not commodities and did not apply to commodities which were to be transported from one State to another.

Mr. HARRIS addressed the Senate.

The bill is a prostitution of the taxing power. The business of options and futures is for the States to regulate or suppress. If this bill be constitutional there are no reserved rights of the States that Congress may not invade. It tends to centralization and paternalism.

Does not think the business lowers prices of products, nor will the bill have the beneficial effects claimed for it by its friends.

Mr. BERRY addressed the Senate.

Opposes the bill as unconstitutional, but believes the business an evil.

Mr. BATE.

The practices are evil and should be suppressed by the States. The bill is a prostitution of the taxing power of the Government, and unconstitutional. Favored the George substitute which had been voted down.

Mr. VANCE.

Favored the George substitute, but was not free from doubt as to its constitutionality. Present bill unconstitutional. No authority under the taxing power for such legislation.

Mr. CALL.

The taxing power has been used to confiscate from the first year of the Government and for purposes other than raising revenue. Hence the practice warrants this proposed legislation.

Mr. BUTLER.

Wanted to find a remedy to stop dealings in "options" and "futures," and therefore voted for the George substitute. Some misgivings as to its constitutionality, but can not support the bill because he believes it not within the taxing power of the United States Government.

Mr. VEST.

Called attention to instructions from Missouri legislature—116 to 13, to support the bill, but says no legislature has the right to instruct a Senator to violate the Constitution, or to make him commit perjury.

APPENDIX C.

DIGEST OF TESTIMONY TAKEN BY THE SUBCOMMITTEE OF THE COMMITTEE ON AGRICULTURE AND FORESTRY OF THE SENATE, UNDER SENATE RESOLUTION OF APRIL 19, 1893, AT ST. LOUIS, MEMPHIS, AND NEW ORLEANS.

ST. LOUIS, *November 8, 9, 10, 11, 1893.*

[W. M. SENTER, aged 62 years; for twenty-nine years a cotton grower in St. Louis.]

The low price of cotton for 2 or 3 years was because of the unprecedented crops of the 2 preceding years, and probably also by reason of the method of handling future contracts of cotton. Cotton is sold on contracts based on a middling quotation, but with the understanding, under the rules of the exchanges, that most any of the 30 grades or half grades may be delivered on those contracts. This is disastrous to the cotton trade and to the price of cotton, for the reason that no one buying cotton would want to be compelled to receive it so graded.

Does not believe future contracts in cotton should be abolished, but thinks they should be restricted to legitimate transactions. Suggests no method of restriction.

Means by "overproduction" that the supply was greater than the demand. Thinks a lowering of the tariff on cotton goods would create a greater demand for the raw material. "Futures" are generally lower than spot cotton, taking from 2 to 4 months for them to come up with spots. Thinks this has a tendency to depress the price of spot cotton. "Futures" have almost eliminated speculation in spots; and, as Southern people are naturally "bullish" on cotton, they have lost in such speculations very heavily. Considers the present mode of dealing in futures injurious to the producer.

Thinks cotton farmers in worse condition than 3 years before, and much worse off than 10 years before. No money in raising cotton at less than 8 cents per pound net to the planter.

Opposes "futures" also on moral grounds, because they are disastrous to young men, who risk more money on them than they ought to do, and eventually, as a rule, lose all they have, and often become embezzlers of funds intrusted to their care.

[W. W. CARTER, aged 53; cotton dealer in St. Louis.]

Believes the low price of cotton prevailing for several years attributable to overproduction, and also more or less to dealing in "futures." Thinks the price of "futures" regulates the price of spot cotton, and the business concentrates the money which would otherwise be better distributed.

"Its moral effects are more disastrous and far reaching than any other gambling device known to and tolerated by civilization."

Believes "futures" should be suppressed by the General Government. Cotton seed from an acre sells for as much as wheat from an acre in the Northwest, and the most valuable part, the lint, remains. With future dealing suppressed, the earnings of the cotton producers will remain among themselves.

[EDWARD MCCORMACK, a cotton buyer for twenty-eight years, the last ten years in St. Louis.]

Believes the low price of cotton for several years mainly due to overproduction. Thinks future dealing sometimes depresses the price, and at other times it enhances it beyond what it ought to be: in the main beneficial to the producers, because at times there is too much cotton offered for sale to be taken care of by the consumer, and if there were no future transactions the price would go much lower than under the present system. Futures sometimes higher than spot cotton. Future dealings maintain the price of cotton, dealers being able to sell against their contracts and thus avoid losses. Thinks the only weak feature in futures in cotton is that such contracts call for mddling cotton, and any grade may be delivered. Thinks the contracts ought to specify the grades they embrace. Futures in cotton have a tendency to give a valuation to property that otherwise would have no fixed value. Instances wool market as being in a more deplorable state than cotton market. Thinks the price of futures for a given month have a tendency to fix the price of spot cotton for that month; but says they do not depress the price. Actual consumers of cotton often buy future contracts, but usually sell them and buy the cotton they use from someone else. Futures are bought with the expectation of delivery. Futures enable the dealer to avoid risks. In buying, the price is maintained; in selling, it may be depressed, but the one offsets the other. Expense of conducting future transactions comes out of those who speculate in cotton. Speculation does not depress the price but has a tendency to enhance it. It is no charge on the crop itself. Thinks the future system so interlocked and interwoven with the real market of the cotton crop that if it was abolished it would disorganize the trade in spot cotton.

[J. D. GOLDMAN, president St. Louis Cotton Exchange, and interested in plantations and stores.]

Cause of low price of cotton is due to overproduction. Cotton has not depreciated as much, relatively, as some other products. Has little experience in future business, but knows there can be legitimate business in it. Perfectly legitimate to buy for future delivery what is required to be used, or expected to be sold in the future, and to sell for future delivery what one has or expects to get. Thinks cotton trade demands future sales. Large dealers who buy spot cotton daily must use futures to protect against the risk of carrying the same. Futures thus benefit the producer by always furnishing a market, which would not be the case if the consumer was the only buyer. Outside of these features, futures may be considered gambling.

The fact that 40,000,000 bales of cotton were sold on the exchange in New York in one year, while the actual crop was only 8,000,000 or 9,000,000 bales, is partly explainable on the theory that many legitimate transactions could easily be and often were had on any one lot or contract. No doubt many transactions were purely gaming. Futures advance price of cotton as often as they lower it. There are always as many buyers as sellers. Knows of no way the risk can be eliminated from all parties. If futures were abolished the cotton trade would be somewhat disorganized, but not wholly so as long as the European market exists. Abolition of futures would injure the producer.

Believes that fully 95 per cent of the gambling in cotton is done entirely outside of the producing community of cotton, and therefore the commissions do not come out of the cotton crop. Cost of covering with futures is very slight compared to the method the planters had in former years of marketing their cotton, paying commission, insurance, interest, etc.

[JEROME HILL, aged 52, resident of St. Louis, and a cotton factor for twenty-five years.]

Attributes the low price of cotton to three causes, mainly:

1. Financial troubles of the world growing out of the failure of the Barings, which upset commercial values and caused a scarcity of money for the moving of the crop, interest being so high—10 to 12 per cent in the cotton States—as to force the producer to sell.

2. The Lancashire strike, whereby the demand for cotton was greatly lessened.

3. Future dealings on the exchanges of New York and New Orleans, which he termed illegitimate and injurious to the producer.

Does not think there has been any overproduction. Thinks cotton can not be grown with profit at less than 8 or 9 cents a pound. Sees no benefit to the cotton producer from future dealings, and says they give advantages to foreign nations by enabling them to purchase the product at a lower figure than under the old system. Explains his reasons for this opinion as follows: "It takes \$4,000 to buy 100 bales of spot cotton. It takes a margin of from \$100 to \$200 to sell 100 bales of future cotton. Hence, a man to be a bull on cotton is compelled to prepare to carry the spot cotton of the country, while a man to be a bear has only to prepare to carry a margin of, say, from \$1 to \$2 per bale upon his deals."

Denies that the enormous sales on the exchanges are for hedging purposes as claimed, and asserts that not over one tenth are for that purpose, the balance being simply gaming transactions. "No consumer of cotton ever consumes what he buys on a contract in New York or New Orleans," because on such contracts he can not tell what grade of cotton he will get. Hence futures do not sustain the price of spots; for they "are sold down and not up."

Believes the South has lost \$100,000,000 in 10 years through futures. Quotations show price of cotton contracts lower than of spots; hence purchasers would buy futures, and this would depress spots. Thinks in future sales the grade of cotton should be specifically defined, as is done in sales of spots.

Thinks some sort of financial legislation necessary so as to make and have an "elastic currency" for the whole country which could be utilized somewhat after the manner of the clearing-house certificates issued in New York during the panic of 1893 for the banks.

[D. C. BALL, aged 36, resident of St. Louis, a cotton factor for 14 years.]

Believes the low price of cotton principally due to overproduction, in a qualified sense, the financial troubles in the cotton-consuming portions of the world having lessened the demand for the raw product, so that the normal consumption did not obtain. Influence of speculation also depressed the market in advance of actual conditions, and beyond what would have been the price without it.

The remedy for the cotton producer to pursue is to raise all the articles that a farm produces which are required upon the farm, so far as climatic and other conditions will permit. Cotton planter can not hold his own against the speculator. South has lost a large amount of money by holding cotton for higher prices. Southerners are naturally bulls on cotton and hold for higher prices, forgetting that the speculator has already possessed himself of all the facts in the case, and is fully prepared to meet them.

Thinks the underlying principle of the future dealings is an absolute necessity for the handling of cotton. In practice, however, abuses have crept in. Their proper sphere is to serve as an actual outlet for the handling of the crop. Beyond that is evil. Without futures the handling of the crop in the few months in which it is brought to market would involve the rankest speculation or else a return to the primitive methods that prevailed before the agencies of electricity and steam had wrought their grand results, which latter plan would be very detrimental. Futures are used for legitimate hedging for the protection of the actual buyer of spots. An immense amount of manipulation is practiced by purely the speculative element on the exchanges, generally to the detriment of the producers and to all other interests save the temporary interest of the speculator.

The consumption of the cotton crop of the United States is proportioned substantially as follows: United States and Canada, 25 per cent; Great Britain, 36 per cent; and the Continent, 38 per cent. Exports direct to Great Britain are in excess of her consumption, and to the Continent are less, the former exporting a portion to the latter. Greater part of exports to Great Britain handled by and through future contracts procured mainly in Liverpool. Can not state as to the exports to the Continent.

The necessary basis of futures is, that futures for any month are lower than for the previous month, the difference being to cover the expense of carrying actual cotton, against which the futures are sold.

The amount of futures chargeable to legitimate indemnities is relatively small when compared with the total amount, probably from 10 to 25 per cent. The outside public, especially the South, being bulls, the speculators on the exchanges are naturally bears, and their influence is necessarily used to depress prices. Futures of that purely speculative sort thus work an injury to the producer. Doing away with futures would throw the entire handling of the whole crop upon the actual handlers of cotton, and the enormous supply coming into the market at harvest time would depress the price. Spinners would have to buy their entire year's supply at once or have the risk of paying higher prices, for the remnant of cotton would be bought up by speculative combines, which could easily be done, for it would be known just what cotton was held outside of the mills, and what the requirements of the mills would be. If the mills bought, they would have to invest an enormous amount of capital, and they would make no contracts in advance for their goods until they had secured their supply of cotton. If the mills had a reasonable supply and would purchase nothing, the producer and his agents would have to carry the cotton, with no outlet, and would finally have to take whatever price the mill owners would agree upon. The exchange represents the meeting place of the buyer and seller, of the producer and consumer, and its basis is to facilitate the exchange of the commodity between these two masses. Exchanges and future dealings enable the small investor to transact business, and combinations of large amounts of capital to control the entire crop are prevented.

Dealing in futures has become so essentially a part of the actual handling of cotton that doing away with it would thoroughly demoralize the cotton business of the country, because it would mean an absolute speculation on the part of the handlers of cotton from the time it was ready to be marketed up to the time when the mills had sufficient stock on hand to cover their actual sales of manufactured cloth. Thinks the demoralization referred to would eventually be overcome, but that combinations and trusts to control the price absolutely would be the outcome.

Up to 1860 the United States was practically the only cotton-producing country of the world; since then other countries have become competitors, and that accounts in a measure for the difference in the condition of the planter then and now, if the abuses incident to speculation in futures could be removed it would be a blessing, but does not think it possible to enact a law that would effectuate that purpose, as it could not be enforced. Future dealings give the power which is often exercised to unduly raise or depress the market; and the exchanges fix the price of actual cotton when sold.

[JULIUS LESSER, a resident of St. Louis, in cotton business for 15 years, handling principally Arkansas cotton]

Thinks the low price of cotton caused principally by overproduction; also poor trade in England and the strike in the mills there. The remedy for low prices is that farmers plant less cotton. Thinks the condition of the planters somewhat improved over former years. Speculation at times will influence the price of cotton, but the producer, in the long run, will share in the profits as well as the consumer. In buying for spinners, futures in New York and New Orleans are necessary for the transaction of the business, for the reason that the large mills buy their supply from 1 to 4 months ahead, not as a matter of speculation, but they sell their goods against it, to be delivered for those months for which they contract in the raw cotton. Must go to the future boards, in such transactions, for prices. These transactions beneficial to the producer because without them there would be no regular market every day, as there is now, for the raw product, but cotton would accumulate in the small towns in the South until it would become such a load that the largest part of it would have to be consigned to large bankers or cotton factors to be stored, at a great expense, and cause a loss to the people. Futures not for protection are pure gambling and are an evil like any other gambling.

Thinks the business would be more satisfactory if the exchanges would not allow a future delivery below a certain grade, say low middling. The reason of the rules of the exchanges on this point as given by them is that only by permitting any and all grades to be delivered, is it possible to dispose of the inferior grades of cotton. Futures so interlocked with the business of marketing real cotton that their prohibition would disorganize the cotton trade, and eventually we would be at the mercy of foreign traders. In his own business never delivered actual cotton dealt in on the exchanges and never had it delivered to him; always closed his trades as soon as he was fully protected in buying spots. Did not expect to tender or receive cotton. Knows of one instance of delivery of actual cotton on future contracts.

[L. L. PRINCE, aged 45; engaged in cotton business since 1867.]

Low price of cotton caused by overproduction and disturbance in the cotton trade in England due to unstable financial conditions.

Speculation in any article sustains it, and therefore dealings in cotton futures are beneficial to the producer. High tariff on cotton goods is injurious to cotton trade. With free trade with South America cotton industry would be greatly benefited. Free coinage of silver would not, except perhaps temporarily, advance the price of cotton, and afterwards would demoralize the market by driving gold out of the country. Does not think future dealings in cotton have much influence either way on the price of cotton, excepting to maintain the stability of it—neither so low nor so high, perhaps, as without futures—but more regular price.

[JAMES H. ALLEN, resident of St. Louis, engaged in cotton business nearly 30 years.]

Overproduction is one serious cause of the low price of cotton; another cause is future dealings. Futures are the great factor in unsettling prices. The great majority of futures are nothing more than gambling transactions, carried on by those who have no interest in spot cotton. They control prices to suit themselves, putting them either up or down at their own pleasure and for their own interest.

In some respects there is an advantage resulting from future dealing; as, for instance, by large planters who sell for fall delivery in a legitimate way, and by manufacturing establishments when they have not money to buy their fall stock and supply of cotton, and when their goods are sold ahead. Not one-fiftieth of the futures are legitimate. Future gamblers often sell cotton ahead for future months at a price much lower than the spot price at the time, and then use all their power of manipulation to make those sales yield a profit. This depresses spot cotton and destroys the market for it. It is only when the market is cornered that there is any considerable amount delivered on future contracts. Future dealers never expect a delivery. The legitimate future buyers, as the mills, for instance, only do so as a protection or for indemnity purposes. Gambling on boards of trade is one of the greatest evils and curses to this country, and is constantly growing and ought to be suppressed by legislation or it will ruin the legitimate business.

[C. F. WOLFENDEN, aged 31, resident of St. Louis, engaged in cotton business for thirteen years; at present the representative of an English house.]

Knows nothing about future dealings in New York and New Orleans. In Liverpool any grade of cotton may be delivered, and allowances are made according to the commercial value of the cotton tendered. No record of future contracts kept in Liverpool.

Speaking from an importer's standpoint, futures are absolutely necessary, all business in cotton being conducted on that basis. "For instance, if we buy 1,000 bales to-day we will sell 1,000 bales of futures to-morrow in Liverpool. When that cotton arrives over there and is sold, we buy back our futures."

Spot prices are fixed by the daily demand for cotton from spinners. Competition fixes the price. Hard to say what fixes the price for futures. Thinks the legitimate future business in Liverpool exceeds the gambling business. Futures may temporarily affect prices, but in the long run prices are regulated by supply and demand. Where future dealings are connected with actual transactions in real cotton it is a charge upon the cotton, though very small; when not so connected it is merely a question of brokerage between the parties, and is no charge whatever upon the cotton.

[R. F. PHILLIPS, aged 44, resident of St. Louis, engaged in cotton business for twenty-four years, executing orders for spinners and others, generally buying for England, but occasionally for Eastern mills.]

The low price of cotton is due, first, to overproduction; second, to competition from other countries, Egypt and Russia, for example, that formerly did not produce any cotton; third, the recent strike in the spinning districts in England; and fourth, the financial panic in this country.

Has no business with either New York or New Orleans, and never had. One reason spot cotton is generally higher than futures is that on such deals one knows what he is going to get, while in futures any grade may be delivered. New York futures are practically useless for the spinner. The Liverpool contract is useful to the consumer, because they know within a grade what they are going to get. Uses Liverpool futures to sell when he gets more spot cotton than he has orders for. That is the extent of his personal experience in futures. Very often a spinner will want to protect himself against sales of yarns or goods for some

months ahead, and he will either do so by buying the cotton for weekly or monthly delivery from some one engaged in the trade, or by a purchase of futures to the extent or partial extent so as not to take the whole risk of the market. Spinners in England try to buy the cotton that suits their wants, and if they can not do so they use futures as an indemnity.

Purely gambling in futures temporarily disorganizes values, either by enhancing the price or by depressing it, and is no benefit to the cotton trade.

[EDWARD BAKER, a cotton buyer for export exclusively, engaged in the business between thirteen and fourteen years.]

The causes of the low price of cotton are overproduction, the Lancashire strike, and the poor trade in foreign countries to which England sells her manufactured products. The main purpose of futures in Liverpool is entirely as an insurance or as an indemnity. Some gambling there, too, but that is true of all large markets.

In reply to the question, "Are future dealings useful or beneficial, when entirely disconnected with any real transfer of cotton, but solely as wagers on the future price of cotton?" he answered: "Every seller has a buyer, every buyer has a seller, and if 4,000 bales sold during the day should depress the market, I don't see why 4,000 bought should not at least keep things on a par."

MEMPHIS, TENN., November 15, 16, 17, 1893.

[SILAS WADE HAMPTON, aged 55, resident of Memphis, Tenn., thirteen years; been engaged in the cotton business up until the last eighteen months, ever since the war, in St. Louis, Cincinnati, and Memphis.]

Cotton market satisfactory up to 10 years ago. Since then great shrinkage of values, due, he believes, to the future business almost wholly, which has sprung up in that last period. Overproduction necessarily lowers prices, but the law of supply and demand has little to do in regulating cotton prices. Future business was legitimate in the beginning of it, but as it developed it became a means whereby the men in New York, or at headquarters, could regulate prices at their pleasure, although New York is a poor market for spot cotton. It is the recognized head of the future business. There are, perhaps, twenty powerful firms in New York engaged in the business, probably not banded together by any special contract, but their interests are identical and they form what is known throughout the country generally as the syndicate or the ring. Many of them are connected with banks and all have unlimited financial backing. They can thus buy or sell any quantity that may be offered and can make the quotations as they choose, doing the business generally through brokers.

Related numerous instances in which, from conditions existing in the South, the people of that section of the country conceived that cotton ought to advance in price, and they accordingly bought futures very extensively; but it did not advance, but declined instead, and the South lost very heavily, as nearly every one who could raise \$100 or so was dealing in futures. Asserted that the conditions referred to naturally demanded an advance, but the New York syndicate forced the price down by manipulations of the market, thereby making millions of dollars out of the Southern speculators whom they had entrapped. His theory is that the whole cotton exchange of New York is composed of "bears" or "short sellers," whose interests all lie in depressing the price of cotton. Defines a "wash sale" as a collusion bid between two parties where no actual contract is made, but fictitious sales to influence the market. Has never been connected with any of the exchanges, or been on any one of them, and his information concerning them has been obtained from others.

The law of trade is "wherever the demand is greatest and the supply is least, there the best prices should prevail; where the demand is least and the supply greatest, there the lowest prices should prevail." Futures destroy this law. Quoted from an article by Mr. W. E. Bear, of London, in the London Economic Journal, republished in Review of Reviews, in support of all his statements. Says England adopted the system from America and that if America should suppress the system it would soon cease to exist in Europe.

Characterizes the assertion that the low price of cotton is chiefly due to overproduction as "a lie the New York fellows have been publishing to the world," and argued that futures made the visible supply of cotton left over from year to year appear much larger than it really was by decreasing the amount in the hands of the spinners, which is called the invisible supply, and increasing it in the hands of the dealers, that being known as the visible supply, the actual amount of cotton left over being practically the same from year to year. Futures require

less money than spots, consequently speculation in spots has greatly declined, nearly all of the speculation in cotton now being in futures. The result is that spot cotton, which would otherwise be in the market, remains in the hands of the merchants as the visible supply, and to that extent tends to depress prices. Futures on any given day are nearly always lower than spots, and that tends also to depress the price. Any one of 32 different grades may be delivered on a future contract on the New York Exchange, and this has a depressing effect. The rules of the exchange permitting such kind of a delivery were framed to discourage deliveries. The price of spots is governed by the price of futures. The effect of futures has been to completely demoralize and derange the legitimate trade in cotton, and to injure not only the dealer in real cotton, but the producer; and their object is to benefit those who control the system. Futures narrow the market for real cotton. There is in New York a small stock of low-grade cotton used for delivery when delivery is demanded, but it is so poor in quality that it is known no one will accept it, and hence deliveries are prevented.

Defines a future as a "so-called trade by which one man agrees to deliver to another a certain amount of cotton, grain, or other product at some future date at a given price and of a given grade;" but says in cotton any one of 32 grades may be delivered, and that the only option feature connected with the transaction described is that the seller has the option of delivering the cotton on any day during the month of delivery by giving five days' notice. Says "puts" and "calls" are options, and explains them as follows: In a "put" one party pays another a sum of money for the right to offer him a trade, the other party binding himself to take it. In a "call" the party pays another for the privilege of requiring the second party to deliver to him a certain article at a certain price on a certain date. The "margin" is the amount put up by the buyer as a guaranty.

Asserts that futures are for the benefit of spinners. Annual consumption of American cotton amounts to 8,250,000 bales. Thinks consumption will exceed the crop, and that were it not for futures the price would be from 2 to 4 cents higher than it is. The great crop of 9,000,000 bales in 1891-92 was only 5 per cent more than the preceding year, and yet prices declined about 33½ per cent, while cotton goods advanced about 20 per cent. About 1,000,000 bales less carried by spinners at that time than had been carried for years, and because of the reluctance of spinners to invest in real cotton and the existence of futures for speculation, a very large amount of cotton was left in the hands of merchants as a dead weight on the market. At least two-thirds of the decline in prices were due to futures, the remaining one-third to excess of production. The majority of those dealing in futures in and around Memphis have been ruined financially, and the business there is regarded as gambling, pure and simple.

Selling for future delivery of products owned, controlled, or in the possession of the seller is legitimate; but other future sales (which amount to 99 per cent of all of such transactions) are illegitimate, and they manipulate prices at the pleasure of the dealers. Cited instances of the decline which he asserted were not warranted from the conditions then prevailing and of fluctuations in the market attributable to futures wholly, whereby country dealers and speculators lost very heavily. "New York future ring" absolute master of the situation at all times. Producers naturally buy believing prices should go higher and the "ring" thus become "short sellers," and being more powerful reap immense profits. Futures make an irregular market and work great disaster in our national financial system. Foreign markets are disposed to maintain prices, while New York and Chicago continually pound them down—a strange phenomenon, when the interests of this country demand the reverse. While cotton is low in price the cotton mills report net earnings greater than ever, and futures thus aid the mills at the expense of the planters.

[DENNIS SMITH, aged 51; cotton buyer in Memphis for twenty-six years.]

Makes the following statement as to the causes of the low price of cotton: "I think there are causes which affect it now which did not affect it 2 years ago. The crop of 1890 left a large surplus, which threatened to put prices down. The crop of 1891 was a larger one and left still a larger surplus (that is, cotton in sight) at the end of the season. Last year's crop, the crop of 1892, was a short crop, still the surplus added to it made more than they wanted, especially as there was a strike in England which curtailed it more than 500,000 or 600,000 bales. This present year, which looks like it is going to be a moderately small crop, there was on the 1st of September about 1,750,000 bales of American cotton, which, added to the moderate crop we may have this year, will still leave a surplus, but probably a reduced one; and at the present time it is affected by this amount of cotton, in my judgment, and the unsatisfactory condition of the cotton-spinning business

in this country—the unsettled condition of the spinners as to legislation. Not only that, but they can't get money easy to lay in stocks. The uncertainty about the tariff has some effect. I think dealing in futures has a tendency to keep the price rather high, because it facilitates the transaction of business and reduces risks to a minimum."

Dealing in futures facilitates the handling of cotton and operates as an insurance. The man who buys futures may be doing it to protect himself or for speculation. He may have sold actual cotton to the spinner, and while he is buying that cotton he does not wish to run any risk, and he buys futures and closes them out as he buys cotton and ships it. Can form no idea of the percentage of purely gambling transactions in futures from the large amount of future sales as compared with sales of spots for the same period, because it is "like one dollar's paying debts; one dollar may pay fifty debts in a day, may go round a hundred times, and is still only a dollar." A legitimate contract for future delivery may change hands or be transferred 50, 100, or any number of times, each transfer being regarded as a separate transaction, thus swelling the aggregate of futures that many times the amount involved in the first transaction, and all may be legitimate. No doubt many of the transactions are purely speculative, but does not know what per cent of them are so. The only legitimate use of futures is for protection or insurance purposes on behalf of the producer or consumer. Has no idea that the wiping out of futures would stop speculation entirely, but speculators and cotton men would want larger profits, and would only buy when the promise of large profits was favorable.

Does not think Memphis cotton market a mere reflex of Liverpool and New York, but it may sympathize with those markets. Memphis ships direct to spinners in America, England, France, and Germany. Thinks New York has more influence over the market than Liverpool.

Thinks a majority of gambling speculators lose money. Cotton speculators often broke up before futures existed. The evil of the future business is the ease with which men of small capital can speculate.

Does not think futures cause an irregular market, but rather otherwise. More changes occur, but none so great as formerly. Was an agent for a Liverpool and New York house for future dealing 8 or 9 years ago.

[WILLIAM FROHLICH, aged 60 years; a cotton buyer in Memphis for thirty-five years.]

Opposes futures and believes them injurious to the cotton trade. Price of cotton regulated wholly by manipulations in New York. The South has suffered greatly therefrom, more especially those who invested in options. Memphis alone lost \$10,000,000 in last 4 years in options. Believes options and futures lower the price of cotton at least 1 cent a pound; make the market more irregular; disastrous to dealing in actual cotton; demoralizing to young men who engage in it; advantage altogether with the men in New York, who seem to be in some secret organization and prey upon the other speculators in cotton. The great money power in New York is in aid of the cotton speculators on the exchange; it controls the whole cotton crop. Largest stock held in New York any one time was 270,000 bales, while futures there amounted to about 52,500,000 bales, and 419 bales of spots were dealt in. The spots included, very likely, what had been consigned to New York. These dealings have decreased the demand for cotton, and have weakened the market. In futures a delivery is seldom contemplated, and if the market goes against the outsider he forfeits his margins as a rule. Nearly all the transactions are mere gambling of the worst form. New York shapes the market to suit the interests of the exchange, and may depress the price or enhance it. The condition of cotton growers has retrograded, attributable largely to future dealings. Memphis has lost heavily in futures, and the depreciation of cotton during the last 4 years amounts to \$20,000,000. Land has necessarily depreciated also, by reason thereof. Legislation to suppress futures should be enacted.

[W. N. BROWN, aged 71; a cotton factor in Memphis for forty years.]

The general condition of the cotton trade has been unfavorable during the last eight or ten years. Futures, as conducted, have been very detrimental to the South. They take all the speculation out of spot cotton. If futures were carried on so that there would be actual delivery, thus eliminating the gambling feature, they would be beneficial. Southern people are largely buyers of futures, instead of sellers, and they lose their margins. In Memphis \$10 have been lost in futures to every dollar won. If spot cotton were bought and taken out of the market, and stored for future sale, with a view of profiting by the purchase, it would retire that much cotton off the market, and the prices would naturally advance. Future

dealings prevent this, by destroying speculation in spot cotton. Futures, like any other species of gambling, is injurious to the morals of the community. New York exchange regulates the price of cotton, and the brokers there "fool the people of the South." Futures govern the price of spots, have depressed prices, and make the market more irregular. As a general rule, no delivery is contemplated in futures. The condition of cotton growers has retrograded in the last 10 years, although the crop has been good for several years. "Thinks futures in cotton more hurtful to the South than the "tariff or anything else."

[C. P. HUNT, aged 50, resides in Memphis, and is the manager for the Mississippi Valley Cotton Company.]

"The business of futures in late years has become so inextricably interwoven with trade it is almost impossible to do without it. * * * We would have to quit business tomorrow unless we could use the future board. We use it as an insurance against transactions and not as a vehicle of speculation.

"This method of doing business furnishes a demand for cotton at all times, even when the mills and spinners are generally out of the market, and brings out a competition that would not exist were the seller and speculator to be done away with."

A variety of demand, no matter whether speculative or consumptive, brings about a competition that facilitates the sale of cotton and enhances its value. Spinners, dealers, and planters can profitably use the future market as an insurance, and to good profit, and in the interest of commerce. Gave an instance of his experience as a planter, where by the sale of his crop for future delivery he made \$20 a bale more than he could have made by waiting to sell his cotton as spots.

Present low price of cotton not due to future dealings, but to actual causes—the large production and bad trade and lack of demand. The exceedingly large crop of 1892 reduced prices, and the mills stocked up heavily, making the invisible supply at the beginning of the next cotton year very large, as was also the visible supply; consequently the crop of 1893, though not large, was augmented by the excess left over from the preceding year, so that the supply was above the normal. The strike in Lancashire from November, 1892, to April, 1893, lessened consumption from 500,000 to 600,000 bales and lessened the demand that much. Argues from statistics that the price of cotton is regulated by the law of supply and demand.

Aside from the insurance features of future dealings, he knows of no benefits accruing therefrom except that they frequently give an impetus to the spot market and advance the price of spots. An advance in futures always creates a demand for spot cotton. If there were no future dealings the planters would be at the mercy of the consumers, who would purchase only as they needed the cotton, because speculators would not take the risk of buying cotton to hold for the demands of the consumers. One form of legitimate future dealings is to buy for future delivery on orders from Liverpool, such orders at present being unlimited. This is called basis buying. A man who buys cotton in the South for export to Liverpool and does not hedge against it by the sale of futures is regarded by the trade as a wild speculator, unworthy of confidence, and a gambler. In all sales made on the exchanges the brokers are the only persons known in the contract; but either the buyer or seller of cotton, under the rules of the exchange, may demand the names of the parties represented by the brokers. The brokers are protected by the margins put up in their hands, which is usually a dollar a bale to be kept unimpaired. There is not only an indemnity, but an insurance of profit by future dealings. The method of buying and selling futures against spot cotton has but taken the place of the old order of things. Formerly the broker bought the cotton on a commission for the spinner. Now the spinner buys direct from the broker. "In most instances the spinner has sold his goods ahead, and buys the cotton ahead from some broker to insure and indemnify him against the loss in the sale of his goods which he has made. The broker buys the contract as a hedge against the sale he has made to the spinner, thus establishing the direct chain, and linking the future and legitimate business so closely that it is almost impossible to extirpate the one without killing the other."

Future quotations reasonably represent the cost of carrying spot cotton from the time the transaction is made until the month in which the contract matures. There may be gambling in futures as well as in other businesses—real estate for instance, or any other commodity.

The price of futures is not fixed on the board of trade arbitrarily, but is supposed to, and really does, reflect the actual price of cotton on the date of the contract. The large amount of future sales on the exchange does not prove that the majority of them are purely speculative, because the crop may be sold any number of times over. Many transactions, however, are mere wagers, perhaps one-

half or two-thirds of them. But "the more cotton there is bought and sold on the New York exchange, the more impetus it gives to legitimate cotton, the more animation it infuses into the market, and the better the result to spot cotton." Cited instances in support of this statement, and says the only one damaged by the gambling transaction is the small speculator "who, if he had not had a chance to bet his money away on cotton, would probably have done it at a faro bank."

In 1893, there was great speculation in cotton, many country merchants in the South buying it and holding it for higher prices. They got the country banks to pay for it, did not sell futures against it, with the result that many of them, and some of the banks, broke. All this would have been avoided had they sold contracts against it. In that year, up to December 5th, there were enormous sales of futures and a constantly rising market; but about that time the demand fell off owing to the Lancashire strike and the closing of the mills, and it began to be ascertained that a large amount of cotton had been carried over from the year before. These facts, together with the impending financial troubles in the United States, caused cotton to decline, but not to a greater extent than did other commodities and stocks of all kinds. The dealers in New York in November of that year, when prices were high and advancing, knew little more of the condition of the cotton than anyone else who was interested in the product.

The costs attendant upon future dealings do not come out of the producer, but out of the buyer. Future dealings are a valuable adjunct to legitimate trade, but may be abused like everything else. Is "fully convinced that the larger the speculation and the more speculators there are in the market bidding for the cotton, the more it enhances the price, and the more it redounds to the advantage of the producer." To derive a full and complete benefit "from the future market it should be left free and unrestricted." The reason such large future sales are made in New York is because four-fifths of the spot cotton sold throughout the South, or three-fourths of the spot cotton bought in the South, are hedged in New York or Liverpool. The exporters and the American spinners hedge in New York. The reason futures in New York on any given day in the year are lower than spots is as follows:

"Cotton arriving in New York City against which contracts have been sold, and which is intended for actual delivery, has, under the rules of the New York Cotton Exchange, to be certificated. In other words, it has to be received by a classifier appointed by the New York Cotton Exchange; it has to be weighed and classified, and a certificate that it has been is attached to the contract, as also a certificate that the weights will hold out, making both grade and weight standard; that it costs anywhere from 18 to 25 points to obtain this certificate, in the shape of actual expenses. Therefore, contracts for the current month are generally a little below the price of spot cotton, as spot cotton must necessarily undergo the expense of certificating before it can be delivered on contracts, and that expense is deducted from the actual value of the spot cotton in order to fix the true value of contracts. It takes about 20 points, almost certainly 15 points, to certificate cotton, and that is about the premium on two months; it is from 7 to 8 points per month."

Spot cotton does not require any certificate where it is sold to a spinner. They rely upon personal examination.

The fact that in the New York exchange futures are sold on the basis of middling cotton has some tendency to make a disparity between futures and spots, because the buyer of futures never knows exactly what cotton he is going to get, which may be anything from "good ordinary" to "good middling," not below "good ordinary." He buys on the basis of middling, and pays for it on a sliding scale of prices, according to the grade delivered. This is in the interest of the producer, especially if he has a crop of low grades, as they can thus market such crops more easily and cheaply than in any other way. Futures are largely used in the market with no expectation of delivering the actual cotton, but more as insurance, nine-tenths of the business being thus transacted. The objection to taking the actual cotton in the future contracts is that buyers might not get the grade suitable for their purposes. Futures do not tend to increase the visible, at the expense of the invisible, supply. The only difference is that without futures the actual cotton would have been sent by the planters to the commission merchants to obtain money as advances, and it would thus be and remain unsold, continually seeking a market and depreciating prices. Future dealing increases business, furnishes an outlet, and leads to transactions that would otherwise be impossible. A spinner would not dare sell his goods six months ahead unless he was able to protect himself by the use of the future market.

Thinks that a large volume of future dealing frequently puts the market for spots higher than it would otherwise go, and when these contracts have to be sold out the market may break more than it would have done otherwise. They tend to

make the market less regular, but without them there would be low prices regularly. Future contracts are based purely on the value of spot cotton. In futures a preponderance of buying orders will advance the market a few points without reference to the value of spots, or vice versa; but whenever there is a serious advance or decline in futures it is based upon immediate or presumptive change in spot cotton. Brokers in New York, Liverpool, and New Orleans are not banded together, but are divided like everybody else. Natural causes and not artificial ones invariably influence the market. The interests of the consumers are opposed to futures because of the competition thus created. Southern people may be better posted in regard to the actual conditions of their crop, but they know less about the collateral and correlative conditions attached to cotton than anyone else; hence they generally lose when they speculate in futures. A corner to advance prices seldom, if ever, succeeds; but temporarily it advances prices, and is thus in the interests of the producer. The mass of the people who speculate in anything lose money. The New York and New Orleans exchanges do not cooperate, but often diverge considerably. Those exchanges have nothing to do with the price of cotton, except, perhaps, temporarily; supply and demand regulate the prices. They make money through commissions largely.

[FRED. B. JONES, aged 33, a cotton buyer, Memphis, for ten years.]

Futures are a necessary attribute of the cotton business; are an insurance to cotton buyers; and if properly used are very beneficial to the planter by reason of the fact that a market is always sustained for the product. To remove futures would put the producer entirely in the hands of the consumer, who could depress the price at his pleasure. Futures are regulated by spots. Futures in New York allude to the whole cotton trade of the country, and not alone to the spot cotton consigned to New York. That city is not a factorage cotton market. Thinks that one-third of the amount of futures is actually tendered in cotton. The others may be tendered but are often settled. The contracts are negotiable, and each one covers many transactions. Futures make the market for spots more regular and less fluctuating—narrower fluctuations. "The worst thing you can do is to interfere with business arrangements that business men make for themselves."

[J. M. RICHARDSON, aged 33, cotton buyer, Memphis, for twelve years.]

Argued in favor of futures on same lines as preceding witnesses. Referring to the amount of futures on New York exchange, he said it ought to be cut in two, because the purchasers of it are also sellers, and each transaction is thus counted twice. Many transactions occur in respect of every lot dealt in, the contracts being negotiable and transferred from hand to hand. Showed that the largest future transactions occurred on the exchange when cotton was advancing and was highest in price. No doubt considerable was pure speculation—perhaps 25 per cent.

[J. F. FRANK, aged 73, merchant and planter, engaged in business for forty-seven years in Memphis, member of the exchange, and a cotton factor.]

Futures have nothing to do with the price of cotton. The great causes of the decline in price is spending the crops before they make them; another cause is "to work on shares;" another cause is the planters rush the cotton to market within ninety days and thus depress prices. Planters should also raise all the necessities of life, and their own supplies as far as they can. That would improve their condition and enable them to hold their cotton for a better price. Poor management on the part of the cotton planters, and not attending to their business, cause them to remain poor, and not futures.

[F. D. TALLEY, aged 61, a cotton buyer in Memphis for twenty-five years.]

Believes futures have greatly injured the cotton-producing business; have depressed prices because of the amount of fictitious cotton thrown on the market, and taken all speculation out of actual cotton, because they can trade with so much less money than in actual cotton. Regards the majority of deals as simply bets on what the price will be at a given time. Supply and demand may in the long run exert an influence on prices, but temporarily they do not. Thinks planters lose by the system at least \$25,000,000 annually. Opposes futures on moral grounds, also, claiming that they are ruinous to men who deal in them, and injurious to the country generally. His testimony, generally, was on the same lines as that of preceding witnesses who oppose the future system.

[JOHN W. DILLARD, aged 55, for twenty-eight years a cotton factor in Memphis.]

Opposes futures because their general result is adverse to the South. The strong cotton elements in New York manufacture a sentiment in the South that cotton is bound to advance, and then when the Southern people have bought great quantities of futures, New York puts prices down and buyers are all wiped out. Delivery is not contemplated except in a few transactions. Futures depress prices while the crop is being marketed, and generally advance them after the crop has left the hands of the producers. They have created a more uniform demand for cotton; fluctuations more numerous but less violent. Cotton growers in the South are getting poorer every year.

The South has lost as much money in futures since the war as it did by the war. Futures are a "genteel" form of gambling.

[T. J. MCCARTHY, aged 46, cotton dealer in Memphis for twenty-seven years.]

The principal causes of the low price of cotton are overproduction, the Baring panic, the Manchester strike, and the financial depression in America. Had it not been for the sustaining influence of futures it would have gone still lower, because if that method of insuring against losses had been removed, spot cotton would have been a drug on the market. A buyer of spot cotton will not purchase unless it is exceptionally cheap, while in futures, the price cuts no figure, as hedge sales can be made no matter what the price may be. Not futures, but supply and demand, regulate the price of cotton. Futures most active when prices are high and advancing. Future business is an insurance, and if removed the result will be disastrous to the cotton business. There is not a single transaction in all the future business on the New York Cotton Exchange where a man wanted to get the actual cotton but what he could get it. New York is a clearing house for the cotton trade of the world. The greater portion of the cotton sent abroad is covered in New York, simply because New York is relatively a higher market than Liverpool for spot or anything. Whenever a man has cotton to hedge, he hedges it in the dearest market. From personal knowledge can say that in Memphis three-fourths of the transactions in futures are based upon spot transactions in some way.

It is utterly impracticable, as a rule, for the producer to sell futures against his crop, because the great bulk of the producers are small and have no knowledge whatever of the machinery of commerce, and only the large planter would be able to sell. Does not think it possible for any legislation passed by Congress to reach the illegal transactions. Whenever the Government starts to regulate trade customs in an arbitrary way it simply results in making trouble for the trade and injures all connected with the trade. To abolish futures would result in the formation of a manufacturers' trust, which would name the prices fixed for cotton and would transfer the future business abroad, making Liverpool the center of the cotton trade of the world to a greater extent than it is to-day. The crop is marketed better than it would be without futures. Sales can now be made at almost any small town in the South at practically the same price that obtains in the cotton centers; whereas, under the old system, only the largest towns dealt in cotton. This system has grown up because it was needed. Doing away with futures would enable the consumer of cotton to get his cotton cheaper than he can now. With the advance of civilization the consumption of cotton has increased. The improvement in machinery has had something to do with this increase.

[L. A. SCARBOROUGH, for twenty-four years a cotton buyer in Memphis.]

Believes the future system at the time it was inaugurated had a tendency to enhance prices, but thinks as at present carried on the reverse is true. The general tendency is to impoverish the producers of cotton and depreciate the price of the product and the value of their lands. Thinks the South has lost \$500,000,000 by the system in the last 20 years. Thinks the New York Cotton Exchange has entire control over the market and can fix prices as they choose. Does not think the law of supply and demand has very much influence on the market as now conducted. Futures have destroyed speculation in real cotton, and they make the market more irregular than it was before. Regards the system as a gambling scheme and as detrimental to any community in which it is carried on.

[JAMES E. GOODLETT, aged 51, a cotton factor in Memphis for twenty-seven years.]

Never dealt in futures. Thinks such dealing has almost entirely destroyed the legitimate buying of cotton and has been very demoralizing to the people of the South, as they have lost large sums of money in New York. Futures have a tendency to decrease the demand for cotton, at least at the time the crop is coming in.

They are almost wholly gambling transactions. Has been informed that the large houses in New York often enter into a scheme to break the market when the outsiders have made heavy purchases of futures. Thinks the producers are entirely at the mercy of the New York exchange, so far as prices are concerned. The system depresses prices very much; it affects cotton, lands, and everything the farmer has to sell.

[C. L. ROBINSON, aged 50, a Mississippi planter living in Louisville, Ky.]

Has never dealt in futures. Opposes the future system for identically the same reasons assigned by the two preceding witnesses, and states no new facts.

[J. P. FARGASON, aged 58, a cotton factor of Memphis.]

His experience in futures has been very limited. The testimony of this witness is substantially identical with that of the three preceding witnesses, and no good purpose can be subserved by analyzing it in detail.

[L. S. LAKE, aged 49, a cotton factor of Memphis.]

The testimony of this witness is substantially the same as that of those immediately preceding.

[H. H. REESE, aged 37, the Memphis representative of the firm of Hubbard, Price & Co., general brokers and commission merchants, of New York.]

The testimony of this witness was favorable to the future system on substantially the same lines as that of Mr. T. J. McCarthy, *supra*.

NEW ORLEANS, LA., November 20-27, 1893.

[WALTER C. FLOWER, aged 43, for ten years a cotton and sugar factor, and now president of the New Orleans Cotton Exchange.]

Comparatively considered, the condition of the cotton planter is no worse than that of people engaged in other occupations in the South, and is fairly good. The depressed financial condition of the Southern farmer is due to two causes: First, the low price of cotton; and second, to his confining himself almost entirely to the raising of cotton, instead of devoting his attention to the cultivating and raising of the prime articles of consumption—corn, small grain, stock, meat, and all small, special farm industries. Where you find a planter devoting himself to the cultivation and the raising of these miscellaneous articles, he is generally independent, or in a much better financial condition than the one who devotes himself solely to the cultivation of cotton, and relies upon the proceeds of the cotton to purchase the outside necessities of life.

Thinks the low price of cotton is due almost wholly to overproduction. A large surplus left over for the last 3 years, added to the large crops, made a supply beyond the demand. The Lancashire strike also lessened consumption, and this had a tendency to further decrease prices; explains the manner in which sales are made on the New Orleans exchange, and submitted a form of the contract in use there, the grade called for therein being of not a less market value than "good ordinary white," and the receiver having the privilege to refuse all "sandy, dusty, red or gin-cut cotton." New contracts are carried to maturity, but are settled before. "All contracts outside of hedges, which are for legitimate purposes, are pure wagers, except that proportion where the parties to the contract at the time contemplated actual delivery."

A system of futures where only the owner of cotton could sell or contract to sell would not subserve all purposes, but would eliminate from the present method the facilities for hedging, which forms the basis of the export trade and the free-on-board business. It would eliminate also from the fictitious consumptive demand of spot cotton the large amount that is taken out of the market annually by the speculators who are forced to buy as hedges against sales made for future months.

Futures have sometimes strengthened the market for spots and sometimes weakened it. Fluctuations occur oftener now than before, but are less violent. New York quotations usually govern New Orleans. The sale of futures has an effect upon the spot market.

[JOHN J. GRAGARD, general commission merchant in New Orleans sixteen years.]

The condition of planters is not much worse than it has been, but believes they are getting poorer. In the last three or four months prices have been influenced somewhat by the financial condition of the country; but taking it for some years,

low prices have been caused by unjust manipulations of the future dealings, which have resulted in an annual loss to the planter of over a hundred million dollars. Thinks 99 per cent of futures are pure gambling transactions. Were it not for these dealings, believes cotton would have been 2 to 3 cents higher last season and would be from 1½ to 2 cents higher now.

[A. H. MAY, aged 66; commission merchant and cotton planter for thirty years.]

Thinks chief cause of low price of cotton is overproduction, and the cause is that planters have to buy their supplies largely. Not prepared to answer as to the effect of futures on the price of spot cotton. Charges for handling futures are less than for spots, and that may cause the difference in price between them.

[HENRY NEWMAN, aged 55; cotton factor and commission merchant; been in the cotton business since 1866.]

The greater part of the period for the last 8 years has been disastrous to the planters and the country merchants. The last 3 years very unfavorable also, because of the low price of cotton and the high price of provisions.

The system of futures "has been a curse to the cotton trade and has been instrumental in desolating many a happy family circle." It has also decreased the demand for actual cotton, and the speculation in actual cotton; also has generally weakened the price of cotton and made the market more irregular. The New York exchange is the great power which regulates prices, having absolute control in the matter. Futures are almost wholly gambling, and the system has been very injurious to the South.

[J. M. PAYNE, engaged in cotton business since 1840.]

Thinks futures injurious to the trade, and says cotton was moved as easily before as since the system came into existence.

[GEORGE W. SENTELL, a cotton factor, commission merchant, and planter since the war.]

Large crops, the strike in England and the manipulations of futures have caused the low price of cotton. In the beginning, thought futures beneficial, but the last year or two, not. Quotations controlled largely by New York. Moral effect of futures is bad.

[NORMAN EUSTIS, aged 39; cotton factor.]

Thinks futures beneficial to the producer, but says: "If the system of a future business could be abolished in Europe as well as in the United States it would be a decided benefit to producers of cotton, but to abolish it in New Orleans and New York and to permit it to be carried on in Havre and Liverpool would be to the injury of the producer. There are no benefits except when used as hedges; a large proportion of them are pure gambling.

"The serious depression in prices is due to the fact that the masses of Southern cotton growers are naturally 'bulls,' and from wanting cotton to go up and wishing cotton to go up they finally get to believe that cotton will go up, and instead of selling their product they hold it and buy futures, and with the first depression in prices * * * they are forced out at a loss; and where a man buys futures and holds spot cotton he is speculating in both."

[ABRAHAM BRITTIN, aged 52; broker.]

Futures enhance the price of cotton for the reason that under this system a large quantity of actual cotton is held in the speculative markets of the world, or withheld from the consumptive supply. Speculation in any product also enhances the price. The causes of the low prices of cotton are, large crops, the decline in silver and its disuse by many nations as standard money, the easy and cheap transportation, and the improved methods of cultivation.

The visible supply of cotton is what is held in the few principal American seaport cities, the European cotton centers, the amount afloat at sea for the European cities, and the stocks held at about 30 prominent towns in America. The invisible supply is what is held on the plantations in America, India, Egypt, and other supply countries; cotton held by the mills in America and Europe, and in transit, which is not counted in the visible supply. The means of knowing the amount of the former are very good and pretty fair for the latter. The value of cotton is less affected by long storage than most any other country; it deteriorates very little. The condition of trade and the financial condition of the country have much influence in fixing the price of any commodity.

[JOHN HILLIAR, aged 38; cotton factor and commission merchant since 1881.]

"There are many advantages through the sales of future cotton; but, weighing the entire matter from both sides of the question and considering the moral effect, I believe that the injuries are probably greater than the benefits to be derived. [Rather a "Joey B" opinion.]

[CHARLES CHAFFE, cotton factor and merchant since 1865.]

The causes of the low price of cotton are overproduction and the depression caused by the manipulations of the future market by "rings." Thinks futures injurious.

[S. W. RAWLINS, aged 74; cotton factor since 1842.]

The cotton trade has not been prosperous for a number of years. Can not see the advantage of futures. [Nothing was brought out in the testimony of this witness that has not been fully covered by many other witnesses who opposed futures.]

[ISIDORE HECHINGER, aged 37; cotton factor and commission merchant for nineteen years.]

Considers futures detrimental to the producer, the result being that the cotton is squeezed out of the hands of the farmers early in the season and the price then put down, and afterwards prices go up by a manipulation of the market. Futures are always lower than spots, hence the consumer will buy futures and await the delivery month escaping carrying charges meanwhile. Moreover, futures eliminate speculation in actual cotton, leaving the whole stock on the market to the detriment of the producer.

[WILLIAM T. HARDIE, cotton factor and commission merchant for fifteen years.]

"There are times when the future business is very beneficial to the cotton; but on the whole it is injurious. * * * The general effect is injurious."

[CHARLES E. LEVY, cotton factor and commission merchant nine years.]

Practically the same as the preceding witness.

[ROBERT MAXWELL, cotton factor since 1876.]

Generally speaking (though not always), thinks futures injurious.

[JOHN W. LABOUISE, cotton broker for twenty-five years]

He took up the subject of the price of cotton from 1842 to 1892, and filed papers and tables of statistics to verify his remarks. He showed that prior to 1849 cotton reached a lower figure than it has ever been since, and that in that same period fluctuations were numerous and violent. Commencing in 1849 cotton with other things advanced, because of the opening of the gold fields of Australia and California and the increase of the metallic money of the world. This range of prices continued on down to 1873, at the time of the demoralization of silver by the commercial nations, since which time there has been a gradual and continuous decrease, attributable entirely to the demoralization of silver. He also showed that during periods of increasing prices the market for futures was most active, and that since the inauguration of the futures system the fluctuation in prices had been less violent than before. Other tables and papers were submitted bearing on the question generally and all tending to show that futures had not been detrimental to the cotton industry, but had in reality benefited not only the producers but the trade in general.

PART II.

THE TOBACCO TRADE

IN ITS RELATION TO TAXATION AND GOVERNMENT MONOPOLIES.

Prepared under the direction of the Industrial Commission by E. W. SAUNDERS.

To the Industrial Commission.

SIRS: I desire to make a report upon the matters embraced in the scope of the resolution under which I was appointed. The topics covered are as follows: (1) the laws of foreign countries affecting the importation and sale of tobacco; (2) the tariff rates thereon; (3) the purchase of tobaccos by foreign governments in American markets by their agents under what are known as *regie* contracts, and (4) the prevalence of the system in foreign countries, on the part of commission merchants, of selling tobacco at a fixed compensation through brokers who are themselves the purchasers or agents of purchasers.

I. IMPORTATION AND SALE.

In response to the first division of the subject-matter required to be reported upon, I submit in summary form and *seriatim* the excise laws of a large number of countries relating to tobacco. This report does not comprehend the laws of all of the countries of the world, but it gives the status of tobacco, as a subject of tax, in practically all of those states in which the people of the United States, from the point of view of commerce, are interested.

I have added in each case, when obtainable, extracts from the statistical reports of the Treasury Department, showing the amount of tobacco, raw and manufactured, shipped by the United States into the country reported upon. The figures are for the fiscal year 1898.

AMERICAN COUNTRIES.

1. MEXICO.

There is no government monopoly in this country. Mexico levies an import duty on leaf and manufactured tobacco, and has an internal-revenue tax on Mexican tobacco, and on the wholesale and retail dealers in manufactured tobacco. Her imports from this country, the form and value of the same, are as follows:

	Quantity.	Value.	Cigars.		Cigarettes.	
			Number.	Value.	Number.	Value.
Unmanufactured	Pounds.					
Manufactured	1,814,085	\$135,636	8,000	\$175.00	2,000	\$9.00

Mexico also imported from the United States plug tobacco to the amount of 4,849 pounds, worth \$1,026.

2. COSTA RICA.

This country, which abolished the monopoly of tobacco in 1896, returned to it under a later reaction, and by decree of the Constitutional Congress of 1898 declared the importation of tobacco manufactured in any form to be a fiscal monopoly.

Local parties wishing to deal in these articles obtain the necessary authority from the state, paying to the exchequer before taking the same from the custom-house \$2.20 per kilogram of gross weight, and taking upon themselves the payment of first cost and charges of introduction. There are no hampering restrictions upon the handling of imported manufactured tobacco by local dealers, unless they are found in executive regulations, which have not been available for examination.

Tobacco imported from the United States.

	Quantity.	Value.	Cigarettes.	
			Number.	Value.
Unmanufactured	<i>Pounds.</i>			
Manufactured	131,625	\$20,156	50,000	\$50.00

This country imports from the United States plug tobacco to the amount of 189,731 pounds, worth \$31,348.

3. SALVADOR.

This small State imposes an import duty on crude and manufactured tobacco. After its importation the sale of this tobacco is free. No tobacco is at present imported from the United States.

4. COLOMBIA.

Under a law of 1894 this country reserves to itself the right, for a term of six years, to import and manufacture cigarettes and sell the privileges of the same.

The production and exportation of tobacco are free. There is a tax upon its use.

Manufactured tobacco imported into the country is subject to a fixed tax. There appears to be no tax upon the importation of tobacco in the unmanufactured form.

The laws and decrees relating to the formalities for the importation of tobacco are the same as those relating to other merchandise.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i>							
Manufactured	56,629	\$8,067.00			7,000	\$14.00	2,162	\$411.00

5. ECUADOR.

There are no restrictions upon the sale of American tobacco in this country. All imported tobacco, whether manufactured or unmanufactured, pays an import duty.

All tobacco, of home production or imported, pays a manufacturer's duty.

Tobacco imported from the United States.

	Quantity.	Value.	Cigarettes.		Plug.	
			Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i>					
Manufactured			2,000	\$13.00	5	\$3.00

6. PERU.

Peru taxes all kinds of imported tobacco, and collects the fixed rates at her custom-houses, but there is nothing in her regulations which makes tobacco a government monopoly. Her provisions touching the forms in which tobacco is

taxed, the amount of the tax, and the methods of collection are numerous and detailed.

Tobacco raised at home is taxed in every form, but the manufacturers for the export trade are encouraged by the return of a portion of the taxes. After the payment of the fixed taxes there are no restrictions upon the local dealers and manufacturers.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i>							
Manufactured					23,000	\$39.00	3,000	\$386.00

7. BRAZIL.

No government monopoly, and nothing corresponding thereto, exists in Brazil. She has an internal-revenue tax, and import duties upon foreign tobacco, raw and manufactured.

The general regulations of the Brazilian tariff law apply to these duties.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.	Plug.
			Number.	Value.		
Unmanufactured	<i>Pounds.</i>					
Manufactured	44,904	\$5,996	5,000	\$550		

8. CHILE.

This country imposes no restrictions upon the sale of American tobacco. There is no restriction upon the importation, sale, or consumption of tobacco, the only obligation which affects it being the custom-house duties, which must be paid at the time of importation for consumption.

Tobacco imported from the United States, etc.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i>							
Manufactured	872	\$180			50,000	\$200	25,078	\$3,791

9. ARGENTINA.

This country imposes no restrictions upon the introduction, manufacture, or sale of tobacco, with the exception of the regulations and duties imposed by the customs laws and the internal-tax laws.

Paraguayan tobacco, however, is favored in the import tax. This is in return for the Argentine trade in that country. As a result of this differential duty Paraguay furnishes two-thirds of the leaf tobacco imported into the country. After Paraguay the next largest importer of leaf and manufactured tobacco is Germany. The bulk of the imported cigars and cigarettes come from Belgium and Italy, principally from Italy.

The manufacture of cigars and cigarettes and plug tobacco and the wholesale and retail dealing in tobacco are regulated by an internal-revenue tax, modeled, in a measure, upon that of the United States.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 236, 146	\$12, 964						
Manufactured			6, 000	\$286	236, 000	\$763	250	\$62

This completes the tale of Central and South American governments, as to which information can be obtained from the reports of the legations of the United States.

Two small States remain in the Western Hemisphere which can be reported upon, namely, Haiti and Santo Domingo.

10. HAITI.

There are no special or restrictive laws in this country touching the introduction and sale of tobacco. Anyone paying the customs tax of 15 cents per pound can import and sell it.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 1, 036, 307	\$116, 732						
Manufactured			4, 000	\$49	20, 000	\$40	701	\$246

11. SANTO DOMINGO.

Information in relation to this country is meager, but it is to the effect that the import duties are high and the régime contract system is in force.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured								
Manufactured							356	\$64

It will be seen from the figures thus far submitted that the trade of the United States in tobacco, either in its raw or in its manufactured form, with the countries of Central and South America, does not present an imposing appearance at present.

It may well be considered that these markets, with proper attention, may be immensely developed in connection with their growth in trade and population.

EUROPEAN COUNTRIES.

At present Europe is by far our largest customer, especially of unmanufactured tobacco.

Having given in brief the laws of the chief countries lying south of us in the Western Hemisphere, the laws of the chief countries of Europe, and then of Asia, will be summarized in like manner.

1. THE UNITED KINGDOM.

England imposes an enormous tariff duty upon imported tobacco, deriving a very large revenue from this source.

This, however, is an open market. There is no government monopoly of tobacco. Anyone complying with the regulations as to taxation can engage in

the tobacco trade. There are specific regulations as to the manufacture of tobacco by local parties, but no provisions to fix the price of the manufactured product or to determine the parties who may engage in the business.

There are certain designated ports of entry where there are warehouses, known as the Queen's warehouses, for the storage of imported tobacco, and when this tobacco is removed for use from these warehouses the customs duties must be paid.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug tobacco.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
	<i>Pounds.</i>							
Unmanufactured	98,366,290	\$8,572,298						
Manufactured			431,000	\$7,558	131,421,000	\$388,994	2,938,631	\$593,459

2. SWEDEN.

The kingdom of Sweden imposes no other regulations upon the introduction and sale of tobacco than those which apply to the introduction and sale of merchandise in general.

There is an import duty upon manufactured and unmanufactured tobacco.

3. NORWAY.

There is a customs tariff on the importation of tobacco into Norway, but, save a law prohibiting the sale of tobacco to infants under 14, there are no restrictions upon the sale of tobacco in this country.

Tobacco imported into Norway and Sweden from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
	<i>Pounds.</i>							
Unmanufactured ..	677,837	\$42,953						
Manufactured					45,551,000	\$148,369	800	\$100

4. SWITZERLAND.

The manufacture and sale of tobacco in Switzerland is not regulated by law. No restriction is placed upon the sale of it. There are no laws detrimental to the introduction and sale of American tobacco. There is a small customs duty on tobacco, and a small additional tax imposed by two cantons.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug tobacco.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
	<i>Pounds.</i>							
Unmanufactured	200	\$25						
Manufactured					3,666,000	\$8,025	44	\$14

5. GERMANY.

Several efforts have been made in Germany to establish a monopoly in tobacco, but on each occasion the Reichstag has maintained a steadfast and successful opposition.

Germany has an import tax upon all tobacco, whether in the leaf or manufactured, imported into the country. It is an open market, and, next to England, the largest buyer of American tobacco.

Tobacco imported from the United States.

	Amount.	Value.	Cigars.		Cigarettes.		Plug tobacco.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 53,787,518	\$4,140,900						
Manufactured			106,000	\$1,091	16,021,000	\$47,866	218,967	\$48,508

Germany also imports from the United States stems to the amount of 6,515,885 pounds, worth \$184,843.

6. HOLLAND.

Holland levies a customs tax upon imported tobacco, but on tobacco raised in the country there is no tax.

There are no special provisions affecting the sale of tobacco in this country.

Tobacco imported from the United States.

	Amount.	Value.	Cigars.		Cigarettes.		Plug tobacco.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 18,232,506	\$1,047,117						
Manufactured			1,000	\$50	4,855,000	\$11,002	182,752	\$57,223

Holland also imports from the United States stems to the amount of 3,931,566 pounds, worth \$56,059.

7. BELGIUM.

There are no provisions for what is known as the *régie contract* system in Belgium, nor are there any restrictions upon tobacco coming in from any source, except the customs duty.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug tobacco.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 15,062,753	\$1,226,991						
Manufactured			2,000	\$115	3,193,000	\$7,923	67,588	\$10,860

Belgium imports from this country stems to the amount of 32,350 pounds, worth \$497.

8. RUSSIA.

The cultivation of tobacco in the empire is a free industry to persons of all classes, in all parts of the country, save in Poland, where the rules and restrictions upon raising tobacco somewhat resemble those in force in France.

The duties on tobacco in Russia are in the form of revenue stamps on the manufactured goods, of licenses to operate tobacco factories and establishments for the sale of tobacco leaf and manufactured articles, and custom-house duties on tobacco imported from abroad, whether in the leaf or manufactured.

Foreign tobacco may be imported and received at the custom-house by those manufacturers and dealers only who have obtained the right to deal in both home products and foreign tobacco.

Tobacco imported from the United States.

	Amount.	Value.	Cigars.		Cigarettes.	Plug.
			Number.	Value.		
Unmanufactured	<i>Pounds.</i> 960	\$96				
Manufactured						

9. GREECE.

In the Kingdom of Greece there is no restriction placed on the introduction and sale of foreign tobacco, except the import duties. The full duties must be paid, as no bonding is allowed, save when the material is intended for reexportation. The customs laws of Greece apply uniformly to all foreign tobaccos.

But little foreign tobacco is imported into Greece, the bulk of what is imported being in the form of cigars from Italy and Austria. Greece imports neither manufactured nor unmanufactured tobacco from the United States. Greece exports a good deal of tobacco.

There is also an internal-revenue tax on tobacco.

EUROPEAN COUNTRIES WITH GOVERNMENT MONOPOLY.

In the remaining countries of Europe, to wit, France, Portugal, Italy, Austria, and Turkey, tobacco is a government monopoly.

1. FRANCE.

This government exercises the complete monopoly of the manufacture, importation, sale, and cultivation of tobacco.

It alone has the right and power to import tobacco in any form. Tobacco imported for the *régie* (government) pays no duty save when it is imported for some European warehouse, in which case a duty is paid. The bulk of the tobacco imported into France comes from the United States. In 1897 18,369,357 kilograms were imported, of which 17,638,808 kilograms came from the United States. The cigars are chiefly imported from Cuba, while the cigarettes come principally from Algeria.

Purchases of foreign tobacco for the government are made by calling for bids through the press. The notices name the day when the bids must be presented, the quantity and quality of tobacco needed, and the amount to be deposited with each bid. Type samples are placed at the disposal of intending bidders. Before calling for the bids the minister of finance decides the maximum price to be paid for the tobacco, and this price is kept secret. On the day of adjudication the bidders appear before a council presided over by the director general of the manufactories. The sealed bids are opened, and rejected or approved according as they are above or below the maximum. The *régie*, by special permission of the minister of finance, may purchase tobacco directly in foreign countries, in which case the French consuls make the contracts.

The government has twenty-one factories in France. Tobacco can be sold in those shops only which are licensed by the *régie*. The shopkeepers keep in the shops a list of the prices at which tobacco in its various forms must be sold. These prices are fixed by the *régie*.

The cultivation of tobacco is allowed in 22 out of the 87 departments of the Republic. Certain lands, as prescribed, can be cultivated in tobacco. The farmers sell to the *régie* at a price fixed beforehand by the minister of finance.

From this synopsis of the system prevailing in France, it will be seen that the monopoly in tobacco is complete. Moreover the figures show that it is immensely profitable to the Government.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	Pounds. 22,016,203	\$1,724,682						
Manufactured			8,000	\$348	1,865,000	\$6,364	35,025	\$9,486

2. PORTUGAL.

There is no restriction upon the importation of American manufactured tobacco except the payment of the customs dues, but the Government monopolizes the importation of American leaf. Anyone can import manufactured tobacco, not less than 40 kilograms, who is willing to pay 4,500 reis duty per kilogram. The State manufactory, called *Companhia Real dos Tobacco de Portugal*, controls

absolutely the importation of the American leaf. One firm—Johannes Wimmer—deals with the American dealers for the Companhia Real. At present they have arranged with Nashville exporters for their leaf. Companhia Real buys through Johannes Wimmer.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.	Plug.
			Number.	Value.		
Unmanufactured	<i>Pounds.</i> 82,155	\$5,000				
Manufactured						

3. ITALY.

Tobacco is a government monopoly in Italy, and is controlled directly by the government, not let to a company.

For a full account of the system prevailing in this country, see Consular Report for March, 1881, No. 5, entitled Tobacco Industries of Italy.

The system of laws relating to this monopoly is very elaborate and complete, and under its operation there is no more opportunity for free individual action or competition than in France or Turkey.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.
			Number.	Value.	Number.	Value.	
Unmanufactured	<i>Pounds.</i> 23,432,941	\$2,620,882					
Manufactured			13,000	\$400	146,000	\$555	

4. SPAIN.

This, too, is one of the continental countries in which tobacco is a government monopoly. Detailed information relating to its system is difficult to obtain, but in substance the same system prevails as in Italy, so that practically Spain is a closed market to dealers in tobacco who do not derive their powers directly from the government monopoly. Spain imports a great deal of tobacco from this country, but under her system of buying, which will be given in detail later on, she practically fixes the price she pays for the leaf.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.	Cigarettes.	Plug.
Unmanufactured	<i>Pounds.</i> 6,897,068	\$208,907			
Manufactured					

5. AUSTRIA.

A complete government monopoly exists here. It regulates the raising, sale, manufacture, and importation of tobacco. It exercises a supervision over growing tobacco, and establishes the depots and shops for the sale of tobacco. This government monopoly is administered through the Austrian tobacco régime.

6. TURKEY.

Under contract of 1884 with the régime company, *Interessee des Tabacs de l'Empire Ottoman*, the régime has the exclusive right to purchase, manufacture, and sell the tobacco grown in the empire. The chief office of this company is at Constantinople. Its capital is £4,000,000. Net profits are divided into three parts—one goes to the public debt, one goes to the government, and one to the régime.

The *régie* is empowered to collect all duties on imported cigars, chewing tobacco, and snuff; to grant licenses for the sale of tobacco and collect the dues upon them; and to collect the duties upon exports of tobacco. All smoking tobacco destined for consumption must come from the factories of the *régie*. The contract is for thirty years, with a provision for renewal, upon terms to be mutually agreed upon. From the date of issue of the firman establishing the *régie*, the Government refrains from issuing permits for manufacturing to private persons. The sale at retail of every form of tobacco is to be made exclusively in shops licensed ad hoc by the *régie*.

The importation of cigarettes, leaf, and cut tobacco is prohibited. Cigars, snuff, and chewing tobacco may be imported under existing regulations, upon the payment of the customs dues. Cigars and chewing tobacco pay 75 per cent duty, and snuff 100 per cent.

Turkey imports no tobacco in any form from the United States.

7. ROUMANIA.

A state monopoly of the sale of tobacco exists in this country. It prohibits the entry of all tobaccos except when purchased by the *régie*. Parties wishing to bring small quantities of special brands of tobacco into the kingdom must get permission of the general direction of the state monopolies. Use of tobacco is universal in form of cigarettes. The amount of tobacco imported for cigars is very small.

In 1898 12,500 kilograms of American tobacco was imported. The American tobaccos are bought by the *régie* in Hamburg and Bremen. No tobacco is imported directly from the United States. The bulk of the tobacco manufactured here is raised in Roumania, but a good deal is brought from Turkey and Greece.

The net revenue to the State from the monopoly is \$5,400,000.

THE ASIATIC COUNTRIES.

1. CHINA.

This country places no restrictions upon American tobacco, under what are known as *régie* contracts or otherwise. Under the general tariff for the trade of China, foreign tobacco, excluding Japanese prepared tobacco, is imported free of duty. Japanese tobacco imported by Japanese officials or merchants for private use, up to forty catties, is admitted free.

Tobacco imported from the United States.

	Quantity.	Value.	Cigars.		Cigarettes.	Plug.	
			Number.	Value.		Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 326, 208	\$18, 116					
Manufactured			5, 000	\$258		176, 948	\$32, 208

2. PERSIA.

This country places no restrictions upon American tobacco that do not apply to the tobacco of other countries. America enjoys the most-favored-nation treatment in respect to her goods. Imported merchandise pays a duty of five per cent ad valorem. In the form of cigars, cigarettes, and pipe tobacco the American product reaches Persia through England in increasing quantities. No tobacco is imported directly from the United States.

3. KOREA.

No restrictions are placed upon the sale of foreign tobacco in Korea, but tobacco pays a higher import duty than other articles. No tobacco is imported directly from the United States.

4. JAPAN.

This country has recently made tobacco a monopoly, but the details of its system have not been available. At the instance of the United States some modifications of the original plan and extent of the monopoly have been agreed upon.

THE INDUSTRIAL COMMISSION.

Tobacco imported from the United States, etc.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 2,751,246	\$197,036						
Manufactured			85,000	\$1,090	263,363,000	\$400,542	104,507	\$37,547

BRITISH COLONIES.

In addition to the foregoing exportations the United States makes the following shipments to the colonies of Great Britain, all of which are open markets, to wit:

1. BRITISH AUSTRALASIA.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 2,246,127	\$332,360						
Manufactured			236,000	\$10,061	123,431,000	\$343,443	3,210,858	\$783,804

2. BRITISH AFRICA.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 1,504,393	\$143,022						
Manufactured			80,000	\$3,993	54,347,000	\$169,886	159,555	\$30,834

3. QUEBEC, ONTARIO, ETC.

	Quantity.	Value.	Cigars.		Cigarettes.		Plug.	
			Number.	Value.	Number.	Value.	Pounds.	Value.
Unmanufactured	<i>Pounds.</i> 6,501,662	\$631,019						
Manufactured			9,000	\$231	10,000	\$32	23,741	\$7,623

II. TARIFF RATES.

Following will be found the tariff rates of the countries heretofore referred to, so far as the same relate to tobacco, whether manufactured or unmanufactured.

AMERICAN COUNTRIES.

1. MEXICO.

	Unit.	Dollars. ^a
Tobacco not manufactured, with the exception of Virginian tobacco.	Net kilogram	1.37
Virginian tobacco, not manufactured.	do	.15
The following duties are in addition to the stamp duties, which are 7 per cent:		
Tobacco in cakes for chewing, sifted tobacco, and cut tobacco for cigarettes, cut tobacco for smoking in pipes, in packets.	do	.24
Tobacco in powder, or snuff, in packets, flasks, or bottles.	do	.50
Cigarettes in packets closed at both ends:		
For the first 25 grams legal weight.	100 packets	.60
For every 25 grams, or fraction thereof in excess in each packet.	do	.60
Cigarettes of tobacco.	Legal kilogram	2.00
Cigars, per 25 cigars contained in a box.		.12½

^a The Mexican dollar was worth, January 1, 1899, 47.7 cents.

2. COSTA RICA.

This country having made tobacco a government monopoly, there are no import duties upon the same.

3. SALVADOR.

	Rate of duty.
Tobacco:	Pesos. <i>a</i>
Raw.....kilogram..	1.00
Manufactured.....do.	3.00
In cigars.....do.	1.50
Other, not specially mentioned.....do.	

a The peso was worth 43.9 cents January 1, 1899.

4. COLOMBIA.

	Pesos.
Cigars.....kilogram..	4.00
Cigarettes.....do.	3.00
Tobacco, cut, and other tobacco of all kinds.....do.	2.00

In addition to the duties proper, there is levied on imported merchandise an additional charge, which amounted, at the time of the last available report, May 4, 1899, to 50 per cent of the regular duties. The peso was worth 43.9 cents January 1, 1899.

5. ECUADOR.

	Sucres.
Tobacco:	
Leaf.....kilogram..	1
Manufactured.....do.	2

In addition to the foregoing the customs authorities shall, on the import duties leviable, collect surtaxes to the amount of 66 per cent. The sucre was worth 43.9 cents January 1, 1899.

6. PERU.

[Law of January 19, 1899.]

The import duties applicable to tobacco of all kinds, cigars, and cigarettes imported from abroad into the territory of the republic, shall be specific. They shall be collected in all custom-houses conformably to the following tariff (the sol being worth 43.9 cents January 1, 1899):

Tobacco of—	Sols.
Contiguous regions, in the leaf, raw, in packets, and carrots, kilogram, net.....	0.25
Any other origin, in the leaf, raw, in packets, and carrots, kilo, net....	0.50
Whatever origin, including contiguous regions, tobacco manufactured in any other way than cigars or cigarettes.....kilo, net..	1.00
Cigars—	
Italian.....do.	4.00
Any other origin.....do.	7.00
Cigarettes of whatever origin, in boxes or packets, not containing more than 24 cigarettes.....per thousand packets..	75.00

ART. 2. In future a duty shall be collected throughout the republic and in every place of consumption on all kinds of tobacco, cigars, and cigarettes, according to the following table:

	Sols.
1. Tobacco of national production, in the leaf, raw, in packets, and in carrots, or in any other form.....kilo, net..	2.00
2. Tobacco of Mexico and Central America.....do.	2.20
3. Tobacco of contiguous regions, in packets, carrots, in the leaf, or raw, kilo, net.....	2.10
4. Tobacco, foreign, of any other origin, in the leaf, raw, in packets, or carrots.....kilo, net..	3.20
5. Tobacco, foreign, chewing or snuff.....do.	2.00
6. Tobacco, foreign, cut or chopped, in packets, cigarettes, etc.....do.	3.00
7. Cigars of whatever foreign origin, in boxes or bulk.....do.	2.50

7. BRAZIL.

Tobacco is not mentioned by name in the Brazilian import tariff and there is no head to which it can be referred, unless it can be considered as coming under the head of food products. There is a general provision under that head that all food products not enumerated shall pay an import tax of 1,200 reis per kilogram. The reis equals 0.546 mill, a milreis (1,000 reis) being 54.6 cents. The consumption duties are as follows:

Consumption duties.

Article.	Unit.	Duty.
Tobacco, cut:		<i>Reis.</i>
Of national production.....	20 grams.....	40
Foreign.....	do.....	120
Of national production, mixed with foreign tobacco.....	do.....	100
Cigars:		
Of national manufacture—		
Of less value than \$90 per 1,000.....	Each.....	8
Of greater value.....	do.....	20
Foreign.....	do.....	100
Cigarettes:		
Of national manufacture.....	Packet containing up to 20 cigarettes.....	25
Foreign.....	do.....	80
Snuff:		
Of national manufacture.....	125 grams.....	60
Foreign.....	do.....	200

8. CHILE.

Article.	Unit.	Rate of duty.	
		Pesos.	United States equivalent.
Tobacco:			
Leaf.....	Kilogram.....	2.60	\$0.949
Cut.....	do.....	4.00	1.46
Cigarettes.....	do.....	9.00	3.285
Cigars.....	do.....	6.00	2.19

9. ARGENTINA.

Article.	Unit.	Rate of duty.
Cigars of Havana tobacco:		<i>Pesos. a</i>
In wooden boxes.....	Kilogram.....	1.50
Loose in packets or cardboard boxes.....	do.....	2.25
Cigars of ordinary tobacco, other than Havana:		
In wooden boxes.....	do.....	.60
In packets or cardboard boxes.....	do.....	.75
Cigarettes of all kinds.....	do.....	1.00
Tobacco stems.....	do.....	.15
Snuff.....	do.....	.40
Tobacco in the leaf or cut:		
Havana.....	do.....	.70
Other origin, not Paraguayan.....	do.....	.22
Paraguayan tobacco.....	do.....	.12

^a The value of the Argentine peso (gold) is 96.5 cents.

10. HAITI.

Article.	Unit.	Rate of duty.
Cigars.....	100.....	1.25 gourde.
Cigarettes.....	Ad valorem.....	50 per cent.
Tobacco, all kinds in leaf, powder, chopped, twist, and chewing.....	Pound.....	0.10 gourde.

According to decree of February, 1899, a surtax of 25 per cent is established on all importations from and after March 14, 1899. The value of the gourde is 96.5 cents.

11. SANTO DOMINGO.

Article.	Unit.	Rate of duty.
		<i>Pesos.</i>
Tobacco in leaves	100 kilograms	20
Cigars	1,000	30
Tobacco:		
In carrots	100 kilograms	20
In powder	do	75
Cigarettes of ordinary size	25 boxes	1

By decree of 1898, to take effect on April 1, 1898, a surtax of 10 per cent on the then existing customs dues was created.

EUROPEAN COUNTRIES.

1. THE UNITED KINGDOM.

Articles.	Rate of duty.	Equivalent in American money.
Tobacco:		
Unmanufactured (stemmed or unstemmed), containing in every 100 pounds thereof 10 pounds or more of moisture	£ s. d. 0 3 2	\$0.77
Less than 10 pounds of moisture	3 6	.85
Manufactured:		
Cigars	5 0	1.215
Cavendish and negro-head	4 6	1.085
Snuff:		
Containing in every 100 pounds thereof more than 13 pounds of moisture	3 9	.91
Less than 13 pounds of moisture	4 6	1.085
Other manufactured tobacco, and cavendish, and negro-head, manufactured in bond, from unmanufactured tobacco	4 0	.97

2. SWEDEN.

Articles.	Unit.	Duty.	
		Kroner.	United States equivalent.
Tobacco:			
Raw, in the leaf, and stems	Kilogram	1.00	\$0.268
Manufactured—cigars and cigarettes	do	4.00	1.072
Other	do	1.20	.3216

3. NORWAY.

Goods.	Unit.	Minimum tariff.		Maximum tariff.	
		Kroner.	United States equivalent.	Kroner.	United States equivalent.
Tobacco:					
Stalks	Kilogram	1.75	\$0.469	1.75	\$0.469
In the leaf, not seasoned, and carrots (credits for warehousing): "Kreditoplæg," 150 kilograms	do	1.75	.469	1.75	.469
In the leaf, seasoned	do	1.75	.469	1.75	.469
Tare for the three preceding numbers: In skins 8 per cent; wicker-work, with or without packing cloth, 10 per cent; baskets 3 per cent; cloth 2 per cent; Casks: a. imported from Europe 8 per cent; b. imported from non-European countries 12 per cent.					
Snuff	do	3.00	.804	3.00	.804

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3. NORWAY—Continued.

Goods.	Unit.	Minimum tariff.		Maximum tariff.	
		Kroner.	United States equivalent.	Kroner.	United States equivalent.
Tobacco—Continued.					
Tare: Bottles or jars, 50 per cent; other receptacles, 15 per cent.					
Cigars and cigarettes	Kilogram	3.60	\$0.984	3.60	\$0.984
Tare: Boxes, 27 per cent; paper, packets, boxes in which cigarettes are packed, shall be dutiable as manufactures of the component material. The boxes in which cigars are packed shall be dutiable as cigar boxes, and boards for the same.					
Smoking and chewing tobacco, and any other manufactured tobacco.	do	2.10	.562	2.10	.562
Tare: Casks or cases, 20 per cent. No tare shall be allowed for paper, packets, boxes, and the like serving as packages for smoking or chewing tobacco.					

4. SWITZERLAND.

Articles.	Rate of duty per 100 kilograms (220.46 pounds).	
	France.	United States equivalent.
Tobacco:		
Leaves not manufactured, ribs, and stalks:		
Manufactured tobacco waste, other than in powder (substitute for tobacco, such as beet leaves, dried, seasoned, etc., tobacco sauce)	25.00	\$4.825
Carrots, and rolls for the manufacture of snuff	50.00	9.65
Manufactured tobacco:		
Smoking, chewing, and snuff (waste from the manufacture of tobacco in powder, Schneeberg's snuff)	75.00	14.475
Cigars and cigarettes	150.00	28.95

5. GERMANY.

Articles.	Duty per 100 kilograms.	
	Marks.	United States equivalent.
Tobacco:		
Tobacco leaves, not manufactured, tobacco stalks and juices	85.00	\$20.23
Manufactured tobacco—		
Cigars and cigarettes	270.00	64.26
Other manufactured tobacco	180.00	42.84

6. HOLLAND.

Articles.	Rate of duty.		
	Unit.	Florins.	United States equivalent.
Tobacco:			
In rolls, or leaves, and unpressed stems	100 kilograms....	0.70	\$0.2314
Pressed stems	do	1.50	.603
Manufactured—			
Snuff, carrots, etc	do	12.00	4.824
Cigars	do	40.00	16.06

7. BELGIUM.

Articles.	Unit.	Francs.	United States equivalent.
Tobacco manufactured:			
Cigars and cigarettes	100 kilograms.....	600	\$115.18
Other, including extracts of tobacco.....	do	129	23.16
Tobacco not manufactured:			
Stripped	do	75	14.475
Other, including stalks, and substitutes for tobacco.....	do	55	10.615

Foreign tobacco not manufactured is also subject to an excise tax of 15 francs (\$2.895) per 100 kilograms, whatever be the kind or quality.

8. RUSSIA.

Articles.	Duty in gold.		United States equivalent.
	Unit.	Rubles.	
Tobacco:			
In the leaf, in bundles, with or without stalks; tobacco stalks.....	Pood (36.07 lbs.).....	15.40	\$11.8888
Cut smoking tobacco, snuff, tobacco of all kinds in rolls, cakes, and carrots.....	Funt (.90 lbs.).....	1.30	1.0086
Cigars, cut tobacco rolled in a tobacco wrapper, cigarettes.....	do	3.20	2.4704

9. GREECE.

In the Special Consular Reports, volume 16, part 1, Europe, giving the tariffs of the countries of Europe, there is no report upon the tariff laws of Greece. The matter, however, is not one of importance in this connection, since Greece imports no tobacco from this country. Greece is an exporter of tobacco.

10. FRANCE.

Tobacco in leaves or in stalks for the *régie* (monopoly) is imported free; for private account is prohibited. Manufactured tobacco for the *régie*. 100 kilograms gross, is exempt from duty.

Manufactured tobacco for the personal use of the importer, to a limited degree, may be imported.

		Rate of duty.	United States equivalent.
Cigars and cigarettes	100 kilograms net.	Francs. 3,600	\$984.80

11. PORTUGAL.

Articles.	Unit.	Rate of duty.	United States equivalent.
Tobacco:			
In cigars	Kilogram	Reis. 4,500	\$4.86
Manufactured in any other form, and cut tobacco stalks	do	4,500	4.86
Tobacco in leaf and in rolls, controlled by special law heretofore given.			

THE INDUSTRIAL COMMISSION.

12. ITALY.

Articles.	Unit.	Duty per unit.			
		Conventional.		General.	
		Lire.	United States equivalent.	Lire.	United States equivalent.
Tobacco:					
a. In leaves, or stalks of leaves, prohibited.					
b. Manufactured:					
1. Manila and Habana cigars, imitation Habana cigars, and cigarettes.	Kilogram	35.00	\$6.76	35.00	\$6.76
All cigars manufactured of leaf tobacco from Cuba, Varinas, Puerto Rico, Java, Colombia, and other of similar quality, are considered Habana.					
Are considered as imitation Habana, all cigars, of whatever kind of leaf manufactured, having the form of, or being packed similarly to, the real Habana cigars.					
2. Of any other quality.	do	20.00	3.86	20.00	3.86

13. SPAIN.

Tobacco in this country is a government monopoly, and in general the importation is forbidden except for the régime.

So long as Cuba, Puerto Rico, and the Philippines belonged to Spain there was a special tariff law providing the terms upon which manufactured tobacco in its various forms could be imported from those dependencies.

14. AUSTRIA.

Articles.	Rates of duty per 100 kilograms.	
	Florins.	United States equivalent.
Tobacco, raw, in leaves, not manufactured; also ribs, stems, and flours: tobacco juice only by special permit.	21.00	\$3.526
Tobacco, manufactured: Smoking tobacco in rolls, unrolled, or stem leaves, or cut; carrot tobacco or stems for snuff; tobacco powdered and tobacco refuse; cigars, cigarettes, snuff, chewing tobacco; also paper made from the stems and ribs of tobacco leaves only by special permit.	52.50	21.315
In cases of special permit, there is, aside from this, to be paid a license tax for each kilogram of cigars or cigarettes, 11 florins; other manufactures of tobacco, 8.40 florins; raw tobacco, 7 florins.		

15. TURKEY

The importation of tobacco into this country is controlled by the régime, and in the special consular reports referred to above there is no rate given for tobacco. According to a statement from the United States legation cigars and chewing tobacco pay 75 per cent duty, and snuff 100 per cent.

16. ROUMANIA.

The importation of tobacco in the leaf and manufactured in any form is prohibited.

THE ASIATIC COUNTRIES.

1. CHINA.

Foreign tobacco free, excluding Japanese tobacco.

Tobacco, leaf, 10 cents per 133 pounds.

Tobacco, prepared, 31 cents per 133 pounds.

Excluding foreign tobacco, but including Japanese tobacco, except where imported by Japanese officials or merchants for private use, up to 53 pounds at a time.

From the report of Consul-General Goodnow, of date August 31, 1898, it appears that "there is very little tobacco leaf imported into China. In 1897 Canton imported 324,000 pounds, valued at \$16,912. Shanghai in the same year imported 190,000 pounds, valued at \$18,948. The only firm known there to be buying leaf tobacco is the American Cigarette Company."

2. PERSIA.

A uniform tariff on imports and exports of 5 per cent ad valorem prevails in Persia.

3. KOREA.

Tobacco is not mentioned in the Korean tariff. It might enter under the following heads: "All unenumerated articles partly manufactured, 5 per cent ad valorem;" "Unenumerated articles manufactured, 10 per cent ad valorem."

4. JAPAN.

This country now makes tobacco a Government monopoly, and in Consular Reports for November, 1898, No. 230, will be found the regulations governing the purchase and import of tobacco under the monopoly. No one can import any leaf tobacco from abroad except the State.

BRITISH COLONIES.

AUSTRALASIA.

[Per pound].

New South Wales.—Unmanufactured, 24.3 cents; manufactured, including snuff, 73 cents; cigars and cigarettes, \$1.46; sheepwash, 6 cents.

New Zealand.—Tobacco, 85 cents; tobacco, unmanufactured, entered to be manufactured in the colony, 49 cents; cigars, \$1.70; cigarettes, not exceeding 2½ pounds per thousand, \$4.02 per thousand, and for all weight exceeding 2½ pounds per thousand, 12 cents per ounce.

South Australia.—Unmanufactured, 39 cents; manufactured, 60 cents; cigars, \$1.52; snuff, \$1.46.

Tasmania.—Unmanufactured, 85 cents; manufactured, 60 cents (thus stated in the schedules); cigars and cigarettes, \$1.70; snuff, \$1.46.

Victoria.—Unmanufactured, 24.3 cents; manufactured, 73 cents; cigars, \$1.46; snuff, 73 cents; sheepwash, free.

West Australia.—Unmanufactured, 48.6 cents; manufactured, 73 cents; cigars, cigarettes, and snuff, \$1.46; sheepwash, free.

DOMINION OF CANADA.

Import duties.

Tobacco, and manufactures of:

Cigars and cigarettes, the weight of the cigarettes to include the weight of the paper covering.....	per pound..	\$3.00
and 25 per cent ad valorem.....		
Cut tobacco.....	do.....	.55
Manufactured tobacco n. e. s., and snuff.....		.50
Foreign leaf raw tobacco, unstemmed, unmanufactured for excise purposes, under the conditions of the inland-revenue act, after June 30, 1897, to be computed on the weight when exwarehoused, per pound.....		.10
Foreign raw leaf tobacco, stemmed, unmanufactured for excise purposes, under the conditions of the inland-revenue act, to be computed on the weight when exwarehoused.....	per pound..	.14

There is no tobacco monopoly in Canada, and upon the payment of the import duties the trade is free to anyone undertaking to engage in it.

III. PURCHASE IN AMERICAN MARKETS UNDER RÉGIE CONTRACTS.

The method pursued by France to secure for her purposes the needed tobacco has already been given. In this country, France and Spain buy through their consuls; letting their bids to the lowest bidder. Formerly Austria and Italy pursued the same course. The effect of this was that many parties were bidding for the tobacco of the farmers in order to meet their contracts. Inquiry among the traders in tobacco in Virginia who dealt in these foreign orders develops the fact that in their judgment the effect of the old system was to increase the value of the farmer's tobacco.

For instance, in Virginia, when the representatives of Italy and Austria contracted with various parties to furnish the quantity of tobacco needed, these parties competed with each other on the State markets in order to secure tobacco of the character required by their contracts. At that time there were about 24 dealers in Virginia who contracted for the Italian and Austrian tobacco. Some were in Richmond, some in Lynchburg, some in Petersburg, some in Farmville, and others at other points. From many points of view this system was better for the local markets, better for the dealers, and better for the producers than the one afterwards adopted. This is the consensus of opinion among the dealers.

Latterly, however, the governments of Italy and Austria have pooled their interests, so to say, and buy through one man in a State. In Virginia, where 24 or more dealers formerly engaged in filling these contracts, one man now fills the entire contract for this State for Austria and Italy, respectively. This has not only affected detrimentally the price of the tobacco needed for the contracts, but has deranged the local markets. The class of tobacco suited for the orders of the Austrian and Italian governments is not adapted to the demands of other dealers to such an extent that there is much competition to secure it. Hence one man, representing these governments, is practically able to fix the price at which he will take the tobacco required for this particular trade. In addition, he is able to designate the markets where he will buy this tobacco, and the producer perforce must go to this market. It is estimated that the two governments take about 7,000,000 pounds from Virginia. Each government takes three classes of tobacco, two in a class, grading down. It is stated that since the change in system of buying from the one formerly in vogue to the present one, of the two governments buying through one man, the price of the tobacco in the first of the above classes has fallen about \$3 in the 100, which represents a large proportion of the profits of the producer in raising this variety of tobacco.

It is easier, however, to state a condition than to furnish a remedy. If the two foreign governments mentioned above have deliberately changed their system of buying, it must have been done on the ground that the new system promised better results to these governments, either in getting better tobacco at the same price, or in getting the same tobacco at better prices, which after all amounts to about the same thing to the governments interested.

If it can be ascertained that the governments are not getting their tobacco at better rates, but that under the new system the one contracting agent not only gets all the profits formerly made by the numerous contractors, but in addition the profits represented by the difference in the prices then obtained by the producers and those now obtaining, it should not be difficult, upon representations emanating from this government, to induce these countries to return to the former system. But if the change has injured to their substantial money advantage, then some compensating inducement must be offered to induce them to return to old conditions.

Inquiry among the producers and the dealers in Virginia, the parties most concerned, finds them bitterly complaining of present conditions, but utterly without suggestions to meet these conditions, or correctives for their troubles.

While the inquiry has been conducted among the dealers and producers in this State who are concerned and interested in the Austrian and Italian orders, the conditions revealed do not exist in the State of Virginia alone.

There are other communities—notably Kentucky—which raise tobacco suitable for the demands of these two governments, and the same troubles which afflict the Virginia dealers and producers affect the producers in those States.

IV. PRACTICES OF COMMISSION MERCHANTS AND BROKERS.

It appears that in England the practice does exist of commission merchants selling tobacco through brokers, who act for themselves or for others, and who in such cases are paid a brokerage, which in any case would be charged by the commission merchant as one of the fixed charges against the shipper.

The evidence in support of this statement is taken from the printed record in the case of Halsey against Bird, found in the clerk's office of the circuit court of appeals of the United States at Richmond, Va.

It appears from this record that one Halsey shipped to one Bird, of England, a number of tierces of tobacco, for sale by Bird as a commission merchant.

A controversy arose between Bird and Halsey touching the sales of this tobacco and the management of Halsey's interest by Bird. The controversy culminated in a suit by Bird against Halsey, brought in the circuit court of the United States in the western district of Virginia, at Lynchburg.

A number of depositions of English brokers and other persons were taken in the progress of the controversy. Such portions of these depositions as throw any light upon the matter in hand are here inserted.

Mr. Frederick Victor Chalmers, of London, England, made the following statements in the course of his testimony: (Mr. Chalmers is a tobacco broker and merchant and importer in London.)

"Q. (By counsel for Halsey.) Did you act as broker for Bird & Co.?—A. Frequently.

"Q. Did you look at these tobaccos (Halsey's tobaccos) for the purpose of dealing with them as the broker for Bird & Co.?—A. If opportunity occurred, we would act as brokers.

"Q. Did you deal with any of these tobaccos as brokers for Bird & Co.?—A. We have handled them as brokers many times.

"Q. When you acted as broker did not Bird & Co. pay you your brokerage?—A. Bird always paid us brokerage when we acted for them as brokers.

"Q. Then it is customary for the commission merchant to charge the shipper with this brokerage, is it not?—A. I believe so.

"Q. Did you sell any of it as a broker?—A. We made purchases.

"Q. Did you sell any of it as a broker?—A. I believe we did.

"Q. How about the X. C. L.?—A. We purchased it.

"Q. Did you purchase for yourself?—A. As far as my memory goes, I believe I did."

The witness went on to say that he sold some of the Halsey tobacco in Bird's hands as a broker, and that he bought some of the tobacco on his own account.

Mr. George A. Willis, another witness:

"Q. Were any of these tobaccos, the Halsey tobaccos, offered to you by Chalmers?—A. I can not tell; they may have been.

"Q. Were they ever offered directly by Bird & Co.?—A. Certainly."

The witness added that the tobaccos were offered sometimes to him by the brokers, and sometimes directly by Bird.

Mr. Chalmers was recalled:

"Q. (By counsel for Bird.) You have stated that in a number of instances you dealt with brokers that represented the banks with which these tobaccos were hypothecated. Did you receive brokerage from this tobacco in any such case as that?—A. No.

"Q. Do I understand that the broker or brokers representing the bank or the broker or brokers representing Walter Bird & Co. would receive brokerage out of the tobacco?—A. Brokers always receive a brokerage when selling for merchants, but it is never or hardly ever given when the brokers are dealing with brokers, because they have only one brokerage when dealing with the original broker, which in this case would be Walter Bird or the bank, so that if they gave him a brokerage in this case they would practically be working for nothing.

"Q. In one of your answers you said that you did not deal in these businesses direct with Walter Bird, but dealt with other brokers, either brokers representing him or representing the bank. Is it not true that you did yourself buy of Bird some of Halsey's tobacco, and that in those cases you were paid the usual brokerage?—A. When we purchased the tobaccos from Walter Bird we should be paid the usual brokerage. In all cases that we bought tobacco from Walter Bird we were paid the usual brokerage. We bought in October, 1893, some of Halsey's tobacco from Bird and were paid the usual brokerage.

"Q. Will you state the names of the parties who got the tobacco which you bought from Bird?—A. I cannot divulge that. That is the private business of my buyer."

James Chambers, another witness and a tobacco broker in London, England:

"Q. Produce the paper memorandum, and say whether the prices attached are the prices which you received on the occasion of those sales.—A. These are the prices which we obtained from our buyers. Our principle as brokers, and simply brokers, is that we never make any alteration between the price to the seller and the price to the buyer.

"Q. Who paid you brokerage on the sales of the tobacco held by Bird for Halsey, as his commission merchant, and which Bird hypothecated with the bank?—A. The National Provincial Bank."

Mr. Lamotte, another tobacco broker of London, stated that he had sold some of the Halsey tobacco in the hands of Bird to Messrs. Taddy & Co., for which a brokerage was paid by Bird.

The court in the above case also gave the following instruction, which was excepted to by counsel for Halsey: "It has appeared in evidence that a uniform charge of 10 shillings per hogshead or tierce upon all tobacco sent to and sold in the English market is always made against the shipper, whether the sale is effected directly by the commission merchant or through the intervention of brokers, and therefore the payment of such brokerage or its allowance to a broker who took the tobacco on his own account is not damage to Halsey, the consignor."

The foregoing matter is taken from the printed record in the above case on file in Richmond City, in the clerk's office of the circuit court of appeals of the United States. It is found on page 41 of the record, and between pages 99 and 155, to which reference can be made.

CONCLUSION.

It must be apparent from a perusal of this report, and consideration of the facts reported, that however prejudicial may be the *régie* system, prevailing in certain countries of Europe, and in Japan, to the interests of the producers in this country, it is no easy task to induce those countries to change their established policies.

By long operation it has become a fixed portion of their fiscal systems, and a large source of their annual revenues for the support of government.

The following table will show the amount of revenue derived from the tobacco monopoly in Italy, France, and Austria. Turkey and Spain do not publish a statistical abstract, and there are no figures obtainable on the subject of the revenue derived from the tobacco monopoly in Japan, which is of recent institution.

Revenue derived from tobacco.

	1892.	1893.	1894.	1895.	1896.	1897.
Italy.....lire..	190,658,886	192,493,276	192,411,342	190,169,327	189,203,977	188,232,887
France.....francs..	377,244,000	374,472,000	376,167,000	331,496,000	376,685,000	Not given.
Austria.....guldens..	84,841,000	86,960,000	90,113,000	92,091,800	90,663,000	93,617,000

When a country has once established a system so productive of revenue as this *régie* system, it is a gigantic task to induce it to abolish or modify it upon the representations of a foreign country that a change or abolition would promote the interests of the country asking the change or abolition. Some substantial reasons looking to the advantage of the country approached with such a proposition must be adduced.

In order to induce such a change in any one of the *régie* countries, with which the United States already does a large trade, we could hardly threaten it with retaliatory legislation. Whatever product, or collection of products, of the country threatened might be selected as the subject of this retaliatory legislation, existing commerce in these products in the United States would be so seriously deranged as to produce the most strenuous remonstrance from our home people.

Changes in existing business, or established industries at home, dealing in the products of the country sought to be coerced into a change in its method of dealing with tobacco, open up too large a field of disturbance to make it likely that the United States will adopt this method of causing a change in this particular policy of the countries complained of. On the other hand, if we seek to induce these countries to abolish the *régie* system, and throw their markets open to the American dealers, we shall be at a loss to find inducements of so considerable a character as to make it to the interest of these countries to wipe out policies which have become ingrained in their fiscal systems, which work with all the precision and celerity arising from long experience and continual manipulation, and which afford so considerable and steady an income.

The following suggestions may not be unworthy of consideration as having presented themselves to me in the progress of the work which I have been conducting.

It should be the policy of this Government to seek to keep those markets open which are now open, and to that end its representatives in foreign countries should be instructed to keep diligent watch upon the progress of legislation in their respective countries.

Whenever any legislation is contemplated which would be to the detriment of the American producers, our representatives should promptly notify the home government, and before the policy becomes fixed or the legislation is enacted, commercial inducements might be offered from this country sufficient to ward off the proposed inimical changes.

It is obviously an easier task, through commercial and reciprocal advantages, to induce the countries which have now open markets to maintain them open than to induce a country like France or Italy to abolish or seriously impair the efficiency of the system in vogue. It is not perceived that any legislation, retaliatory or otherwise, can advance the interests of the tobacco producers in the countries which now make tobacco a government monopoly. But continual watchfulness on the part of our legations, judicious diplomatic representations, and wise treaty arrangements will continue open markets in many countries in both hemispheres and enable our tobacco dealers in time to build up a trade in those markets which will compensate for the losses resulting from existing monopolistic arrangements in other countries.

Argentina and Paraguay furnish an instance in point of what may be done by a reciprocal arrangement. This report shows that in consequence of a favorable differential tariff rate on the part of Argentina in return for rates made to her on other articles Paraguay furnishes the bulk of the raw tobacco imported by the former country.

Our diplomatic agents must be alert to make like arrangements with the countries of the world now open markets. Especially should they be diligent to avert in any open market the change to the *régie* system. Whatever can be done for the tobacco producer in respect to the matters which are the subject of this report is to be done chiefly by diplomatic representation and commercial treaties, and not by any form of retaliatory legislation.

It is not proper in this report to undertake to afford, in any given instance, suggestions for any particular line of reciprocity with any designated country.

This may be safely left to the representatives of the people, who are peculiarly charged with their interests in this particular.

The facts reported in this communication have been carefully gathered.

On January 17, 1899, a circular from the Department of State was sent to the legations of the United States in the various countries of the world. This circular related to such investigations as would elicit all the facts in relation to the restrictions put upon the sale of American tobacco in foreign countries. Many replies more or less full and complete were received in response to this circular letter, and from these replies as well as from other sources much valuable matter has been culled.

In some instances, notably in the Spanish-American countries, the local unit has not been given its equivalent value in American currency. This is because the reports say that these units fluctuate in value to such an extent that such reductions would be of no particular value, and therefore they do not give them.

The tariff rates are according to the latest consular reports. The values of the importations of American tobacco in all its forms into foreign countries and the amount of these importations are for the fiscal year 1898, the figures for the year 1899 not being altogether so available.

As an evidence of the enormous profit in the tobacco monopoly in France and an illustration of the consequent difficulty of inducing that country to change its system upon representations proceeding from this country, the value of the tobacco imported by France in the year 1897 will be given, and the value derived by the government from the manipulation of that tobacco will be contrasted with it.

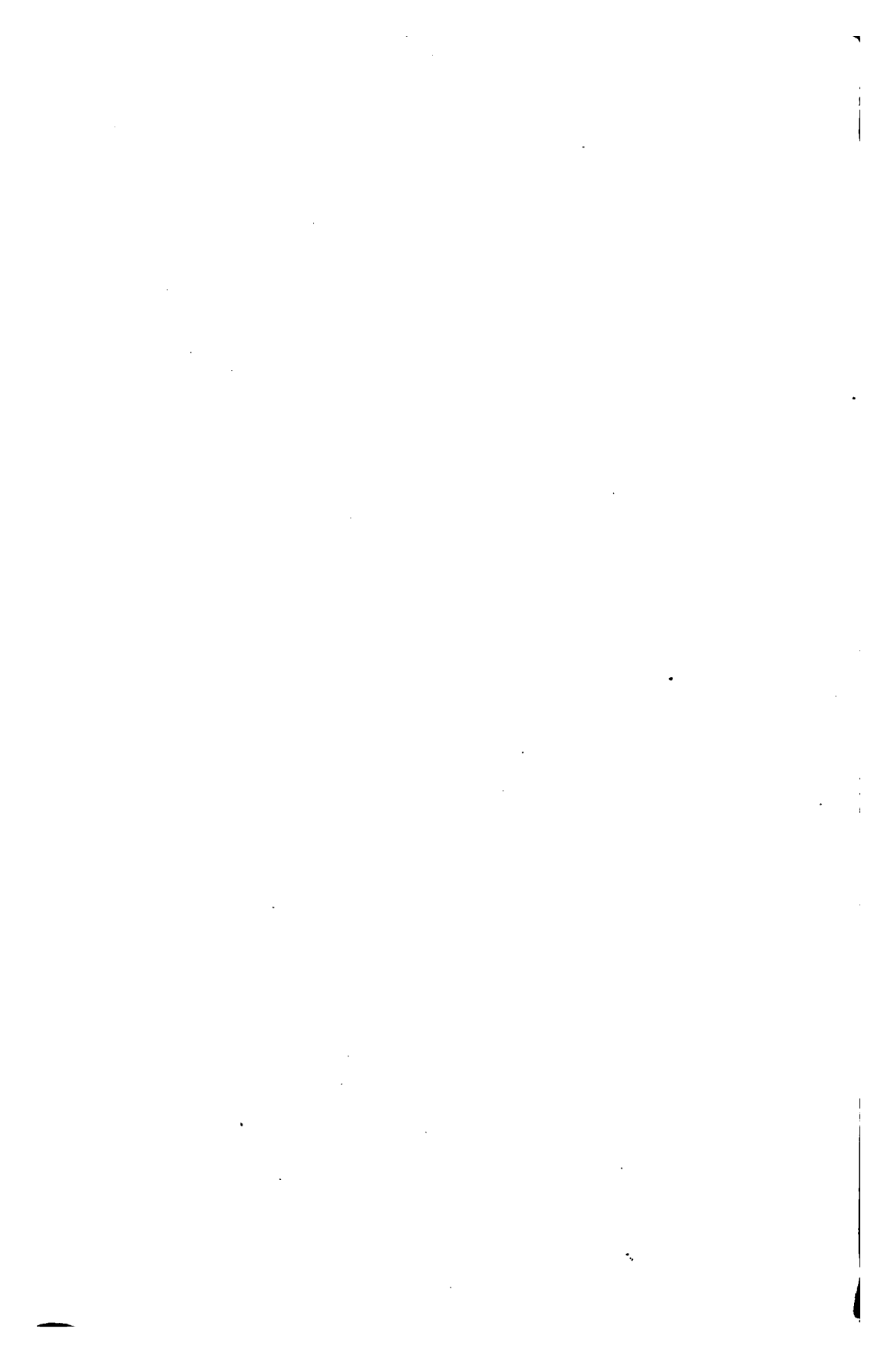
	Francs.
Value of entire imports of tobacco into France for the year 1897.....	28,105,111
Revenue derived from the tobacco monopoly for the year 1896 (the revenue for the year 1897 not being given, but that for the year 1896 sufficing for the purpose of comparison)	376,665,000

As the revenue from the tobacco monopoly, according to the tables, averages about 370,000 francs in France for the years 1892, 1893, 1894, 1895, and 1896, it is easy to see that the revenue from this source for the year 1897 will be about the same. A business which upon an investment by the government of 28,105,111 francs yields 370,000 francs and upward will not be lightly abandoned.

The same conditions prevail in Turkey, Roumania, Austria, Italy, and Spain.
Respectfully submitted.

E. W. SAUNDERS.

ROCKY MOUNT, VA., January 12, 1900.



PART III.

AMERICAN FARM LABOR.

Prepared under the direction of the Industrial Commission by J. R. DODGE, Expert Agent.

INTRODUCTION.

The expert agent of the Industrial Commission, Mr. J. R. Dodge, who as Statistician of the Department of Agriculture made nine national investigations of the wages of farm labor, makes the following report to the commission. It treats of the present condition of the laborer, the comparative sufficiency of his compensation, and his relative thrift and prosperity. It investigates the personnel of our farm laborers, their characteristics and tendencies, to what extent native, and the geographical distribution of the foreign element. The course of wages from the beginning of the factory era is traced, showing their changes and advance, and the effects of boom and panic periods.

The average rate of wages is shown to have been nearly doubled in 50 years, is fully as high now as at any time in 20 years, and higher than in any other country in the world. The efficiency of the more skilled and reliable class is found to be increasing, from the influence of agricultural education, in the object lessons presented by thousands of graduates or students of colleges and dairy schools, the teaching of farmers' institutes and the agricultural press. The influence of the general use of agricultural machinery in the same direction is shown, as well as its amelioration of the drudgery of farm labor and its shortening of hours of service, while reducing the cost of production, and enabling the farmer to compete in the world's markets, increase cultivated area, and give wider employment in needed farm improvements.

The common labor of the farms, including the transient service in harvest or other operations and the less intelligent of the foreign element, does not appear to be improving in efficiency. It is less reliable and valuable than the native farm labor of a former generation.

The difference in wages between the districts where white and colored labor respectively dominate is wide. Some testimony is adduced showing improvement in efficiency in a small class of colored laborers in certain sections, while the larger portion are reported to be either standing still or retrograding. Colored labor is represented as superabundant, crowded, listless, and unambitious, lacking inducement to effort. On the other hand, it is shown that many of these laborers go from Virginia to Rhode Island and Connecticut, get \$18 to \$20 per month and board, giving good satisfaction to employers, and returning for the winter. They are probably of more than average reliability and efficiency, but they could not get more than half as much wages at home.

The result of the investigation, which includes the testimony of the most eminent observers and teachers of rural economy, proves conclusively that our farm laborers with apparently lower wages than persons of the same intelligence and skill receive in town employment, save more money, have more comforts and fewer anxieties, and have better opportunities to secure homes and social position. Cases are cited, as common experiences, of laborers who have gone to the towns, spent their little savings, and after years of struggle have returned to the country to recoup themselves. In addition to wages the married laborer has a house free of rent, a garden, firewood, pasturage for a cow, and other perquisites. The enterprising laborer usually becomes a tenant and afterwards a farm owner.

The investigation finds no warrant for fears of land monopoly and the predominance of the tenant class. Most of the assumed increase of tenant farmers is in the South, where three-fourths of a million farm laborers are in the guise of tenants, simply from aversion to personal supervision and control, and a desire for independence—farm tenancy only in name. In the North it is shown that the tendency is away from land monopoly; that farms are becoming smaller in every decade; that the "bonanza farms" are breaking up; that large tracts bought on speculation are being subdivided and sold; that while there has been some increase of tenancy, it has not arisen from the profit of land holding for tenant occupancy. Some have rented settled farms to take up fresh cheap lands in a speculative spirit. Prosperous farmers in advancing years go to town to educate their children and take their ease, leaving the farm in the care of a son, who is counted in the census as a tenant. It is found that the trusted farm laborer often becomes a tenant, and eventually a proprietor. It is shown that tenancy is temporary, that there is no tenant class and little likelihood of one.

It is in evidence that some farmers in prosperous circumstances are tiring of land occupancy from inequality of taxation, arising especially from full assessment of all farm property, while other wealth is largely exempt; and at the same time there is a tendency toward country life by enterprising and active men of intelligent and progressive views of the possibilities of scientific agriculture.

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CHAPTER I.

FARM LABOR IN THE UNITED STATES.

The labor of the farms of the United States, which produces annually values exceeding \$4,000,000,000, includes that of the proprietor, the tenant, and the wage laborer. In 1890 the census enumeration made a total of 8,395,634, of which the hired laborers were only 3,004,061. At the present time the total of classes that may be considered workers in agriculture should be at least 9,500,000, while wage earners may not be more than 3,500,000.

The interrelation between these two classes is too intimate for exclusive consideration of wage-earners as factors of our farm labor, though that is the specific subject of the present investigation.

In the first settlement of an agricultural community, especially in a country where land is practically given away, there are few farm workers who are not farm owners. That is essentially the condition in Oklahoma to-day, and it is largely so in the entire Rocky Mountain region, and only in less degree on the Pacific coast. The labor of the farm owner is still the main factor in the Southern mountain sections from Virginia to Alabama, and even in the hill lands and small farm districts of eastern Mississippi, northern Louisiana, and Texas. And whatever of white wage labor in the South contributes to the production of that region is almost solely from the families of the local farmers. In the North the native laborers are mostly the sons of farmers, who accept such position temporarily, usually becoming in turn tenants and proprietors. In many sections of the North a large proportion of the wage earners are foreign, of which specific mention will be made in considering the personnel of labor. Thus these classes of rural labor are merged and commingled in a process of development as natural as that by which a tadpole becomes a frog. It sometimes happens among the prairies, where every farmer is a speculator, that a prosperous owner gives up his improved acres to a tenant and seeks a new farm at primitive cost for the profits of the development. This ambition to become an independent proprietor is general, if not universal. The freedman, stolid and apathetic as he is generally reported, and wedded to the hand-to-mouth method of living by hereditary instinct and present inclination, from the first repudiated wage labor very generally, substituted a crop-sharing contract that avoided supervision and simulated independence, and whenever able to buy a mule and plow he rented 40 acres, more or less, and in those rare cases where industry and prudence brought a degree of success bought a few acres of land in the hope of making a home. From lowest to highest there is no absolute exemption from the sentiment of home making and land ownership which controls so powerfully the life and labor of the American rural toiler.

This investigation seeks to show the condition of the wage laborer, the comparative demand for his service, his relative efficiency, the sufficiency of his compensation in comparison with other labor of equal skill, and the increase of his rate of wages during the past half century. It also inquires as to the personnel of such labor, to what extent of native origin and how its foreign elements are distributed, of what characteristics and tendencies, economic condition, and indications of progress. It considers briefly the methods of labor most closely allied to wage working, those of crop sharing and tenant farming, especially as a large proportion of our so-called tenancy is only wage making under another name, preferable by reason of strong preferences and bitter prejudices, and having almost none of the essential character of real tenant farming. This feature of tenancy has its origin in a desire for land distribution rather than in land monopoly, and its treatment will serve to correct the false idea gained from a superficial reading of a somewhat erroneous census classification.

As a result of this investigation it is found that the present supply of labor varies locally—in some sections ample for the demand, in others insufficient and scarce. Available farm laborers were never more fully employed than at present. The great variety and activity of industrial enterprises makes unusual demand for labor, which withdraws from rural districts certain classes of laborers. The skilled and responsible service of the farm, like the technical service of the factory and that of mechanical trades, is not so much affected by the competition, but the mass of unskilled farm

laborers are attracted to the cities by the demand for common labor in manufacture, trade, transportation, and public improvements so actively carried on at the present time.

Hired labor in our agricultural operations is only in part distinctively agricultural. No small part of it is of a mixed character, rural in summer, industrial in winter. Though the laborer may not claim to be "jack-at-all-trades," he often has two. It is a necessity of his case, as soil cultivation is not carried on throughout the year in Northern climates. This is the reason why the farm laborer of almost exclusively agricultural districts complains of nonemployment and hard times. A third of the time in idleness is not conducive to prosperity. In the districts where from half to two-thirds of the labor is nonagricultural it is not difficult in good times for the ordinary farm laborer to find winter employment.

Thoughtful leaders in agricultural progress realize the necessity of finding more winter employment on the farm. The care of stock, cattle and lamb feeding, and dairying require winter work, but grain growing, and the production of hops, flaxseed, hemp, and many other specialties break up the continuity of farm labor, injure its efficiency, and encourage tramps and "hoboes" in a semimendicant life. Professor Roberts, of Cornell, urges the building of cottages for married laborers, and finding continuous employment by a change of crop and amount and kind of live stock kept. Farm improvements in many directions can be conducted in winter; farm betterment, for conservation and increase of fertility and more effective and economical management, is the great agricultural want of the day, and continuous and permanent service of the better class of laborers is a necessity of this work.

SUPPLY OF FARM LABOR.

In the New England States a relatively small amount of labor is required to supplement that of the resident farmer and his boys (if any remain on the farm), yet laborers are comparatively scarce, and difficulty is found in obtaining reliable and satisfactory help. In New York there is no superabundance, and a scarcity of efficient and desirable men is reported. It is nearly the same in Pennsylvania and New Jersey. Throughout the West the demand for men of experience and skill is greater than the supply. In the grain districts of the Northwest, where the principal demand is crowded into a short season of harvesting, there is serious difficulty in obtaining men, and the dependence is mainly upon a floating class from the cities, tempted by large wages to go into the country, moving as harvest progresses from the more southern to extreme northern grain fields, and returning to hibernate in the winter, to find temporary and often precarious employment, or to swell the ranks of professional tramps. There is a strong demand at high wages for agricultural laborers in the mountain States and on the Pacific coast. A few years ago, for the first time in the history of California and Oregon, there was a surplus of labor and lack of employment. Now the activities of agriculture, mining, and public improvements, with the absence of many now in the Philippines, causes a scarcity and high prices. There is an especial demand for Americans of skill and experience in various lines of agriculture.

The South, in a large part of its area, has a surplus of farm labor, as much the larger portion of it is employed in agriculture and must ever be until manufactures are more disseminated; until, in the progress of diversification and development, the constructive arts and public improvements demand a larger share of the local labor. Thirty to 40 per cent of the population in agriculture will suffice to provide for home consumption and possible exports; 60 per cent will depress prices of products and rates of wages, and keep a large contingent of labor in a congestion which is semi-idleness. This condition causes discouragement to farmer and laborer, represses ambition, and impairs efficiency. However, the progress of manufactures, of coal and iron mining, is rapid in the South, and the tendency is to rapid industrial development, which should make this a highly prosperous section of the country.

EFFICIENCY OF FARM LABOR.

An inquiry into the relative efficiency of our farm labor at the present time brings a mass of interesting expert testimony. It reveals elements of advance in certain classes of labor and in others of retrogression, the results of certain prevailing conditions. The great variety and wide dissemination of agricultural implements and machines has stimulated the intellect and trained the hands of the laborer wonderfully. Thirty years ago the reaper manufacturer was obliged to send out a trained mechanic to set up the machine and teach farmer or laborer how to run it. This was one reason why it was so expensive. Now the skilled laborer requires no such teaching.

Another powerful influence for increased efficiency (which is treated at some length in another chapter of this report) comes from the agricultural colleges, through their graduates on the farm giving object lessons of advanced practical methods on a scientific basis, becoming examples which, by superior results, compel imitation. It is not long since these institutions were decried for assumed failure to send their graduates to the farms. The statements of some of these colleges may prove a revelation to many. The oldest agricultural college—the Michigan—has trained 4,000 students, and of these three-fourths returned to the farm, the dairy, the orchard, and other fields of labor. The agricultural college at Cornell has had 2,000 students, mostly within the last 10 years, and nine-tenths of them are interested in agriculture. The college of agriculture of the Ohio State University, since 1892, has sent out 376 graduates and ex-students, and of 300 that have been traced only 46 are in other occupations. The Wisconsin College is doing a great work in its short course, taking young men from the farms for instruction during two winters, of which Professor Henry writes:

"Last year our short-course term closed on the 1st of March, and in 3 weeks from that date we had placed 101 young men on farms in all capacities, and as far as Staten Island on the East, California on the West, and Texas on the South."

The Minnesota School of Agriculture, since the opening in the winter of 1888-89, has had 3,200 students on its rolls. Of those who have graduated, 85 per cent have returned to the farm, 10 per cent are in kinds of work closely allied to agriculture, and only 5 per cent in professions and other callings unrelated to farming. In the Illinois College of Agriculture the students "are all land men, and will go upon the land." The California and other Western institutions are doing a similar practical work, and the universal testimony is that they are exercising a powerful influence in advancing the efficiency of farm labor, as well as in promoting the cause of scientific agriculture.

On the other hand, the annual inundation of grain fields in harvest time, hop yards in the picking season, fruit picking in districts of extensive market orchards, and similar harvest seasons requiring large numbers of hands for a short time, has a demoralizing effect on farm labor, reducing its efficiency in those lines. Such employments demand little skill; the requirements of each are simple and easily satisfied. They constitute a low order of farm labor, if worthy to be classed with it at all, and are excrescences upon its fair face.

In all that pertains to skilled labor, to improved processes more or less in evidence in all parts of the country, in practical applications of scientific principles in farm practice, and in the use of new and more or less complicated farm machinery it is safe to say that the efficiency of farm labor is increasing; but in the lower grades of labor, those requiring little training or skill, which do not come in close contact with the influences that are elevating the superior labor classes there is less efficiency than in the common farm labor of 40 years ago. This is the tenor of testimony of keen observers and the natural result of the influences for degradation affecting it.

The general testimony from the Eastern States indicates a lower average efficiency than 20 to 30 years ago, from the decrease in the proportion of natives whose place has been taken by foreigners of less intelligence. Only in the more responsible positions are now found those of American nativity. Similar conditions exist in the Middle States. There is no decrease of efficiency in the skilled labor of the farm, but the laborers in less important and transient services are not equal to the average reliability and value of the labor of the past generations. In Delaware and Maryland there is much complaint of the unreliability of the younger negro laborers, while the older people who remain on the farms are generally satisfactory. In western Maryland the laborers are mostly white; they are believed to be more efficient than formerly. In the tobacco and cotton districts of Virginia a low degree of efficiency is reported, and it is only a little better in the grain-growing districts, but labor is fairly efficient in the southwest and in the grazing and fruit-growing counties. There appears to be little change, for better or worse, in the Carolinas, Georgia, or in Alabama, and there is much room for improvement in all this region. Conditions are much more satisfactory in Florida, to employer and laborer, with far less repining and dissatisfaction, simply because production is more diverse and labor less restricted and monotonous. The State Commissioner of Agriculture says: "The average laborer and his employer are working harmoniously, and both are prospering." In Tennessee there is much diversity of condition, and of opinion respecting it, from difference in point of view. The floating class near cities is not satisfactory. In many districts of the country, labor is said to be steadily, if slowly, growing in efficiency. The weight of testimony in Mississippi is that labor is less valuable and harder to manage than formerly. There is more diversity of employment in Louisiana, higher wages, and in some districts a scarcity of desirable labor,

while the colored laborer maintains in large degree his unprogressive characteristics. There is increasing demand in Texas for labor of superior intelligence; a demand greater than the supply. In these classes there is a tendency to increased efficiency, but little indication of improvement or progress among the colored people.

There is manifest improvement in quality of labor in the central West; greater permanency in the expert service of the farm, in the higher grades of farm work, including all except the more common and transient labor, of which the grain harvest supply is a type. The permanent laborers of the Northwest are mostly native, though largely of foreign parentage, and are increasing in skill and effectiveness, and are gradually merging into the land-owning class. There is manifest increase of skill in Iowa and Nebraska among those employed in dairying, cattle breeding and feeding, and other lines of advanced agriculture. The mountain section pays high wages and demands the services of reliable men. A high degree of efficiency is generally reported in this region. Laborers are mostly Americans, except in Arizona and New Mexico, where many Mexicans are employed, who are regarded as fairly good men at routine work, and especially well trained in irrigating work. Improvement is manifest and positive on the Pacific coast in skill and intelligence. American laborers, trained in specific industries, and expert in technical operations, are more abundant and permanent. There are still some Chinese for common labor, and Japanese are coming in rapidly, while the beet-sugar factories have brought in Italians acquainted with beet culture; yet a positive improvement in the average quality of labor is evident.

GENERAL POSITION AND CHARACTER OF FARM LABORERS.

Does the compensation of the farm laborer equal that in other occupations? In actual money, no; in its superior purchasing power, in perquisites and advantages, yes. This question has been misunderstood and therefore misrepresented. The poor laborer has been pitied because he handles less money than the city laborer. So does the farmer who may handle a few hundred dollars a year but lives in a house that would rent in town for \$1,000, keeps a half dozen working and driving horses, and supports his family. This investigation—the details of which will be found in another chapter—makes it clear that the farm laborer's condition, financial and social, is superior to that of the city laborer of the same grade of intelligence and skill. The evidence is overwhelming and conclusive. This refers to the regular laborers by the season or year, and not to the transient or nondescript class who are only a part of the time farm laborers.

The difference in prices in city and country, the items that constitute the cost of living, which in the city are increased by transportation charges, commissions, and duplicated profits, until sometimes the cost is doubled, is not the only advantage of the farm laborer. If married and working for wages without board a house is usually furnished free of rent, or else the rent is merely nominal; he has a garden patch, firewood, often pasturage for a cow, and sometimes the cow is furnished, and, in many instances reported, a horse or the use of one. In some instances a quart of milk daily is included, and in nearly a cases fruit of various kinds is available. Life experiences are cited where men have gone to the city and returned to the country after years of trial, in some cases spending in city living a handsome surplus saved as farm laborers and coming back to a possibility of recouping their lost savings. In multitudes of instances the laborer, married or unmarried, has made initial payments on land from his savings, and become a prosperous farmer. Eminent authorities of large observation and experience agree that the larger city wage is more apparent than real; that the economically inclined can live better and save more in the country; that the farm laborer has larger opportunities, a better social position, and chances to become a broader man and a better citizen.

This upper class of rural laborers is now in greater demand than ever before and receives higher pay and appreciation now than at any former time. It gives tone and character to rural service and furnishes an example that must have some incitement to ambition of other classes. It is made up of the native element of the population, or of foreign born of the self-respecting class, mostly from the north of Europe.

There is a class less efficient and desirable, with inferior training in rural occupations, whose rate of compensation is less, and whose condition, from lack of economy and judgment more than deficiencies of compensation, is not so good, and whose lives and aims are not on so high a plane. There are many of this class on farms of the Atlantic slope, north of the fortieth parallel, some of the native element but more of the foreign. This region makes large demand for labor in industrial, commercial, and many other lines, leaving the commoner and ruder forms of rural labor to a class inferior in intelligence and training. They receive good pay but less than the more

skilled and reliable in higher agricultural and industrial positions, and many of them are saving money and improving their condition. A high authority in Connecticut reports that he employs this class of labor, not exactly what he would like, yet they give fairly satisfactory service and save on an average \$100 per year each. There is a large representation of this class in the Ohio Valley and throughout the central West. The harvest hands of the Northwest, working by the day at \$1.50 to \$2 and \$3 per day, according to ability, are a branch of this class, and yet more various in ability and character. They are a peculiar product of the great wheat-raising districts, moving in crowds from south to north as the grain ripens, and returning to the cities for such casual employment as may be had in winter, or to hibernate, or beg, or go as vagrants to workhouses. They are a very miscellaneous lot, from the reputable to the vicious. There seems to be a fascination for this migratory life which causes the gipsy instinct to crop out in fairly respectable individuals. In hop picking and commercial berry picking the same classes and characteristics appear. It is an unfortunate system, injurious and debasing in many of its influences, but perhaps inseparable from the existence of dominating specialties in certain districts.

Another class of laborers, a large one in a dozen States, is that of the freedmen. Its condition leaves very much to be desired in lines of improvement. It tries the patience and tests the wisdom of the wisest in its management. Its improvement, in the view of many of intelligence and experience, is almost hopeless; yet some of our correspondents, who have had a lifetime of experience with them and know their limitations, hold quite a different view, believe in their possible growth in efficiency and reliability, in economy of management, in ambition to acquire homes, and the general betterment of their condition.

To live from hand-to-mouth, and literally take no thought for the morrow, has become a hereditary instinct. The statements of agricultural authorities in the cotton States mostly aver either that the colored laborer is unimproved or retrograding; a few indicate some tendency to improvement, some increase of thrift and ambition to acquire homes, and think that when encouraged and aided by white men a large proportion would own homes. On the other hand, some report a disposition to go in debt to such an extent as to imperil their equity in land purchased.

A marked characteristic of these people, which is a bar to their efficiency as farm laborers, is a general and strong tendency to drift to the cities, where they crowd and compete with each other for employment, and seem to prefer short jobs, casual employment, with time for socialities and idleness. Many of them eke out a precarious existence in cities, and prefer that mode of life to more comfortable living in the country.

While this gregarious mode of living is the natural result of constitutional tendencies, it is intensified, according to the testimony presented, by the kind of education received in most of their schools—the same as in white schools, which have also erred in educating the masses out of their proper spheres of natural usefulness. They all want to be teachers or preachers, lawyers or doctors; to live in towns, henceforth avoiding country life and labors. In this respect education is a distinct detriment to them. The only remedy suggested is a radical departure in these educational methods and aims. Prof. Booker T. Washington strikes the keynote when he suggests that the best way to promote the education and welfare "of the black man in this generation is to throw aside all nonsense, all nonessentials, and work up through agriculture, the trades, domestic science, and household economy. In this way," he says, "we lay the foundation for our children and grandchildren to get the greatest benefit out of abstract education."

This will be a slow process. Some will doubt its efficiency, but the examples from the training of Tuskegee, Hampton, and other schools that train head and hand together are quite too numerous to serve as exceptions that prove the rule of intractable worthlessness, and afford evidence that this is a practicable and sure method of developing the efficiency of negro labor. This investigation attests, in the testimony of wise and experienced agricultural authorities, the influence of practical agricultural education in the North on farm labor. Its beneficent influence is even more needed in the South.

While returns on the tendency to acquire homes are not generally indicative of thrift, they admit the fact that a few succeed in purchasing small farms. Dr. Knapp, of Louisiana, attests a general desire for homes, which he has tested by actual experiment, and made a considerable proportion would buy small farms if they had a chance.

TERM OF SERVICE.

Inquiry has been made as to the length of the term of service. A small proportion, generally the most skillful and reliable, are employed during the year. The number is increasing, especially in the West and on the Pacific coast, and the system is desirable and advantageous to employer and laborer, but is limited by the relative continuity of work required in different rural industries. A necessity is felt for such a diversity of crops and variety of stock as to require labor throughout the year. A larger proportion of laborers is employed for the season—7, 8, or 10 months, and averaging not more than 8 or 9, at monthly rates. The casual employment by the day is for special service in farm improvement, spring plowing or extra work in planting, and especially in harvest operations, cutting and thrashing of grain, gathering orchard fruits, picking of berries, hop picking, and many other specialties. In the sugar districts of Louisiana it is reported that payments are made by the day, but laborers have comparatively steady employment and local residence.

HOURS OF LABOR.

Returns relative to the hours of daily service show the influence of general labor agitation for shorter hours in shortening the day of rural service. The reduction is very general, and greater where industrial and mechanical enterprise is dominant. In many portions of New England the average can not be more than 10 hours, but somewhat irregular in different work, sometimes longer in the haying season and in the long days of summer in dairy work, but with such casual relief and relaxation and more or less remission of duty in rainy weather. With similar differences in the Middle States, the average of all agricultural laborers may be roughly estimated at 10 hours. In some sections of the West the day is a little longer. The average in Missouri, as made officially from hundreds of local estimates of correspondents of the State board of agriculture, is 11 hours. It is not far from 10 hours in the Pacific coast States, and is a shorter day than formerly. Such returns as have come from the South are mostly 10 to 11 hours. Exact averages can not be given, in fractions of an hour, but it is quite evident, from almost universal agreement, that the day has been much shortened. The difference in time, however, by no means expresses the extent of the amelioration, as labor-saving agricultural implements and machines have practically obliterated the drudgery of farm work. In many farming districts the farmers themselves do not work half as hard as 40 years ago, and their hired laborers find almost as much relief from the hardships of their service.

WAGES OF FARM LABOR.

The rate of farm wages in this country greatly surpasses that of all others except the British colonies of Australasia and Canada, where it approximates that of the United States. It is quite as high now as at any former time, except in the inflation period following the civil war, and almost twice as high as 50 or 60 years ago. As the result of the present investigation, approximate averages, believed to be worthy of credence, are presented: For the United States, exclusive of the cotton districts, representing white labor almost exclusively, viz, \$23.67 per month, or \$284 per annum; for the United States, including colored labor, \$225 per annum. These rates compare with about \$150 for Great Britain, \$125 for France, \$100 for Holland, \$90 for Germany, \$60 for Russia, \$50 for Italy, and \$30 for India, as nearly as can be ascertained from current statistics.

Everywhere the rates are variable, as is the degree of efficiency and kind of service. Where board is furnished, a mode of contract which predominates in most of the States, for reliable service \$18 per month in New England is a medium rate, and up to \$22 is paid for higher quality, with lower rates for inferior service. In Massachusetts \$25 is not unusual for the best men. Inferior quality ranges downward from \$18 to \$12. In Rhode Island wages are high, up to \$30 and \$35 without board, and colored men get \$18 to \$20 and board for the season.

Wages in New York are nearly as high as in New England, but in the Middle States the average is about 10 per cent lower. The more skilled and reliable in New Jersey command \$16 to \$20 with board, and \$25 to \$30 if they board themselves. The rates are about the same in Pennsylvania, but lower in Delaware and Maryland, mostly from \$10 to \$14 with board. In Virginia \$6 to \$12, according to location and quality, with rations, is the present range of colored labor; \$8 to \$10 in North Carolina; \$6 to \$8 mostly in Georgia. Going westward, rates are a little higher, especially in Louisiana and Texas, ranging from \$12 to \$15 per month, though in the rice and sugar districts some grades of service command higher pay; in the latter, compensation by the day is in vogue at the rate of 60 cents to \$1.

In the central West efficient and skilled laborers are in demand, and readily get \$18 to \$22, and in some cases \$25 and board. Inferior service ranges downward from \$18. Day labor receives about \$1 per day; in harvest \$1.50 to \$2, and sometimes higher rates. A State investigation in Missouri makes the average there of all grades of service \$14.20 with board, and \$20.03 without board, lower than any part of the Ohio Valley except Kentucky and West Virginia, about \$4 less than Iowa and Nebraska and the States of the Northwest, where labor is now in great demand and compensation high. Wages in the mountain States are higher than in the States eastward to the Atlantic States. On the Pacific coast rates are still higher than in any other section of the country, though not equal to the extravagant compensation of the earlier history of wages there. In Washington \$250 to \$350 per annum with board is readily obtained by reliable men, and \$1.50 to \$3.50 per day during harvest. In Oregon and California these rates are usual for reliable labor, with still higher compensation for exceptionally efficient service, though between native and foreign labor of various grades, including Chinese, Japanese, and Italian, there is a considerable variation in rates. The present average, with board, is about \$25 per month, and about \$10 more when board is not furnished.

The course of wages during the last half of the nineteenth century, as detailed in a chapter on that subject, marks the extraordinary progress of American industry. The change from domestic industries to the factory system, from manual to machine labor, from individual to associated effort, was then in active progress, and the upward movement of wages had already begun, demand for labor was increasing, and the era of industrial and constructive activity was inaugurated. Soon the civil war called millions of men to the field of strife, after which came a rebound of productive forces which sent wages for a brief period to a very high level. Then followed, from 1875 to 1879, a period of business depression, the result of wild speculation, expanded credits, and depreciated currency. From 1879 to 1893, in a period of steady development and great prosperity, wages were remarkably uniform, varying by slightest degrees from year to year. After another period of business paralysis, from 1894 to 1897, labor is again in full employment, production larger than ever, distribution and consumption exceedingly active, and wages as high as in 1880 to 1892 on an average, with some local variation.

In the long period of prosperity, after recovery from the depression which ended in 1879, in which five official investigations of wages were made, there was a marked degree of uniformity in rates of wages in each section. It was a period of quite full employment of labor and of a high degree of general prosperity. Practically the same differences in the rates of the several geographical divisions were preserved. The averages of each section present these differences very clearly, viz: Pacific Coast States, \$36.55 per month, without board; New England States, \$28.20; Middle States, \$23.40; Western States, \$22.47; Southern States, \$14.62. In the rate payable in cash and board or rations the range of cash differences was narrower, the board difference being naturally larger in the districts of higher wages; thus the cash differences in wages without and with board being respectively \$11.90, \$8.96, \$8.05, \$7.25, and \$4.84, and in the period when wages were higher these board allowances were increased proportionately.

An instructive feature of this series of official returns is the showing of the effect of monetary panic—of a period of business paralysis—on wages. As the previous inflation period was characterized by abnormally high rates, the culmination of the decline in wages in 1879 was a veritable slough of despond for the laborer. From the highest rates, in 1866 (except in California), to the lowest, in 1879, the decline was from \$26.87 to \$16.05 for the whole country; from \$46.38 to \$40.11 in the Pacific States; from \$33.31 to \$21.36 in the Eastern States; from \$29.83 to \$20.24 in the Middle States; from \$27.84 to \$19.81 in the Western States; and from \$16.63 to \$12.65 in the Southern States.

These were the extremes from the abnormal height of the boom period to the depths at the culmination of the influences of depression. The measure of decline is better told by the reduction from 1875 to 1879, which includes most of the fall in wages during the period of depression. For the United States the decline was from \$19.49 to \$16.05, or 17 per cent; from \$43.50 to \$40.11 on the Pacific coast, or about 6 per cent; from \$29 to \$21.36 in the Eastern States, 26 per cent; from \$26.99 to \$20.24 in the Middle States, 25 per cent; from \$23.25 to \$19.81 in the Western States, 15 per cent; and from \$15.28 to \$12.65 in the Southern States, 17 per cent.

It is seen that the decline was very light in the Pacific States, as business operations had been conducted on a gold basis and demand had been sustained for the peculiar products of the coast, so that little depression had been felt. A fall of about one-fourth attests the severity of the labor congestion in the Eastern and Middle States, large numbers of laborers in industrial and constructive industry being thrown out of employment, some of them seeking rural employment, competing directly and

indirectly with the farm laborers. The central West, with less of mechanical and factory labor, felt this competition far less, and the reduction of wages was only 15 per cent. The decline of wages in the South was only about two-thirds as much as in the industrial States of the Atlantic coast, or 17 per cent.

The late panic, from 1894 to 1897, also had a depressing influence on wages, but not so general or severe as in that of 1873 to 1879. Industries had become widely disseminated and firmly established. The wealth of the country had increased immensely in a period of prosperity. Consumption was much enlarged and exportation greatly increased. Still the effect on farm labor was serious, reducing the rate of wages much more in some districts than in others, and showing its most injurious result in nonemployment more than in reduction of rate, farmers doing their routine work themselves with labor-saving implements and neglecting avoidable labor. All industries were affected, but some more than others. The wool and woollen industries were paralyzed by free wool; the values of sheep, of wool, and of pasturage were reduced nearly one-half; the markets for domestic woollens were glutted with shoddy goods and all forms of wool wastes, until factories were compelled to shut down or run on half time. Woolgrowers and manufacturers suffered immense losses, and the country was flooded with inferior goods. In some of the woolgrowing districts laborers were willing to work for their board.

CENSUS STATISTICS.

The census classification of the personnel in agriculture, in 1890, made the number of agricultural laborers 3,004,061, besides those classed as dairymen, gardeners, florists and vine growers, overseers, and farmers, making a total of 8,395,634 in agricultural operations, of whom 678,142 were females. The distribution is as follows:

Occupation.	Males.	Females.	Total.
Agricultural laborers.....	2,556,957	447,104	3,004,061
Apiarists.....	1,728	45	1,773
Dairymen and dairywomen.....	16,161	1,734	17,895
Farmers, planters, and overseers.....	5,055,180	286,427	5,281,557
Gardeners, nurserymen, and vine growers.....	70,186	2,415	72,601
Other agricultural pursuits.....	17,880	417	17,747
Total.....	7,717,492	678,142	8,395,634

The census gives data concerning the nativity, color, age, conjugal conditions, illiteracy, etc., of farm laborers. It also reports the time unemployed, from which it appears that of 2,536,957 males 525,278 were unemployed only a part of the time; 286,598 from 1 to 3 months, 202,434 from 4 to 6 months, and 36,246 from 7 to 12 months. This would make an average of a little more than 3 months for a little over one-fifth of the whole number. If this is the total loss of employment it is not a very unfavorable showing. The following statement relates to nativity, color, etc.:

	Total.	Married.	Illiterate.	Can not speak English.
Aggregate.....	2,556,957	598,256	763,687	78,308
Total white.....	1,815,020	358,318	261,286	68,327
Total colored.....	741,935	239,938	502,401	9,976
Native white.....	1,812,302	286,801	214,947	13,181
Native white.....	258,771	22,018	12,629	4,677
Foreign parents.....				
Foreign white.....	243,947	49,494	38,670	50,460

Less than a fourth of all are married. This fact will cease to excite surprise when we know the age of these laborers. Five-eighths of all are under 25, and about one-tenth are under 15. Nearly four-fifths are under 35, of the whites more than five-sixths, and considering only native whites almost nine-tenths. They do not all die at that age, or leave agriculture, but many become tenants or farmers; a few continue as farm laborers.

NATIVITY OF FARM LABORERS.

Inquiry as to the foreign-born laborers employed at the present time and their local distribution reveals an increasing reliance upon this class in New England. Through Maine, New Hampshire, and Vermont the French-Canadian element is distributed, and though preferably settled in communities in manufacturing towns many accept agricultural employment especially in temporary harvest engagements. Canadians, Italians, and other nationalities are employed in market gardening in eastern Massachusetts and Poles are numerous in the western counties. Rhode Island employs men of these nationalities, and many Portuguese and negroes. The laborers of New York are divided somewhat evenly between native and foreign. New Jersey has a considerable native supply of labor with many foreigners of various nationalities. In fruit and vegetable growing many negroes come from the South for the growing season. There is less of foreign labor in Pennsylvania.

There is almost a total absence of foreigners in the agriculture of the South, the freedmen nearly monopolizing the cotton fields, and native white and colored labor is ample in the small farm districts.

In the Ohio Valley a majority of farm laborers are native or native-born sons of foreigners of many European nationalities, including Germans, Swedes, Danes, Irish, and recently some immigrants from the south of Europe. The Scandinavian element is very strong in the Northwest, and as farmers and farm laborers is very enterprising and efficient. In Nebraska foreign labor is everywhere in evidence, but probably the native element predominates.

The mountain States, especially the northern belt, have mostly American labor, supplemented by immigration from European nations. In New Mexico and Arizona the more skilled labor is American and foreign, the latter being German, French, Swiss, Italian, with a few English and Scotch. The common labor is mostly Mexican, of mixed Spanish and Indian blood. The foreign element has never been large in Washington and Oregon. Many Chinese were there at one time, but they left and have been barred from returning by the Exclusion Act. Formerly the Chinese swarmed in California, but they have become objectionable and were gradually driven from the State by the force of public sentiment and have been practically kept out by the Exclusion Act. Japanese are coming in now, and Italians and other South of Europe immigrants for the cultivation of the sugar beet.

TENANT FARMING AND LAND MONOPOLY.

An investigation of the facts of tenant farming in the United States does not warrant the conclusion that the class of farmers will ever give place to one of tenants, or that the soil is to be monopolized by the rich. The farms of nearly every State are becoming smaller, and the great "bonanza" estates are being subdivided and sold. A large part of the statistical showing of increase of tenancy comes from counting in the freedmen share laborers of the South as tenant farmers. This fact, on the contrary, proves the tendency from land monopoly to small farms, from extensive culture by hired labor to individual management, looking to ownership. In such subdivision of a great plantation the laborers may never own the land or achieve much prosperity, but they emphasize a desire for independence.

There are Americans and some foreigners who are buying considerable bodies of cheap lands, but they are held for a rise in value by settlement and cultivation of neighboring lands. They are bought on speculation and not for permanent occupancy by tenants. Many such tracts have already been sold before occupancy to any appreciable extent by tenants.

There is greater danger of driving the opulent land holder from land ownership to other investments by unequal and excessive taxation of lands and other agricultural property. Tenancy may increase somewhat from various causes. Some farmers in older settlements rent their farms to take up public land and bring it into cultivation as a speculation. Others, in comfortable circumstances and advancing years, rent a portion of their superfluous acres to decrease their cares, while adding to their income. Many starting with unimproved acres have built up valuable farmsteads and, seeking ease for declining years in town residence, have rented their farms on shares to sons who are willing to remain farmers, or to enterprising laborers. When apparent increase of tenancy is traced out in the Northern States, much of it is found to be due to these and similar causes. The incumbent tenants are usually farm laborers or sons of farmers, and tenancy is a stepping stone to ownership. That some do not succeed is more the result of bad management than of bad markets or of bad laws, for the enterprising and persistent do succeed, while others fail.

There are frictions and disagreements between landlords and tenants who rent on shares, in many cases, which will tend to discourage this form of tenancy, and the lack of interest in conserving fertility should limit similar rentals for cash. Such dissatisfaction tends to a preference for selling rather than renting.

It is not at all probable, from existing conditions and prevalent tendencies, that acquisition of land for the purpose of renting will increase, but it is possible that there may be enlargement of the class technically called tenants from causes enumerated and others, but whether tenants or farmers they will prosper in proportion to their application of science to practice, avoiding wastes, making labor effective, and increasing productivity and fertility.

The subject of tenant farming and crop sharing is considered more in detail in another part of this report, as the result of special investigation relating to those topics.

The chapter on the personnel and condition of farm laborers is prepared from extensive correspondence, and is enriched by extracts from statements of some of the wisest and most experienced teachers of applied agricultural science in the country, and from farmers of large observation and intimate knowledge of rural conditions.

CHAPTER II.

THE PERSONNEL AND CONDITION OF LABORERS.

1. NEW ENGLAND STATES.

The farms of the States of northern New England employ labor to supplement the work of the farm done by the family of the owner. Quite a large proportion employ no labor except in haying time or casually in other harvest seasons by the day. The larger farms, and those receiving more cultivation, require more help, and on many of these, and on dairy farms, employment by the month, for the season or year, is required. In the southern portions of New England, where manufacturing industries control a very large part of the labor supply, and farming is more in specialty lines—in dairying, orcharding, small fruit and cranberry growing, and market gardening—a very much larger part of the labor is hired; and everywhere the laborers are mainly native, the sons of neighboring farmers, never employed in expectation of permanency, but as a temporary expedient while awaiting other chances of employment or business engagement, or in fewer cases the purchase of land for themselves, for home making and the production of milk, fruit, and vegetables.

Foreign labor on the farm has been increasing for many years. Irish immigrants were formerly the largest element, who generally at first, and largely since, have sought industrial or municipal labor in cities. Of those who accepted employment on farms a large proportion have become land owners. For two or three decades the volume of immigration has been large and continuous from Nova Scotia and the Province of Quebec to the cotton mills, and in far less degree to farms. They constitute the largest element of foreign farm labor in New England. In the Aroostook region in Maine they come in large numbers from the St. John River region, for temporary employment in potato digging, and in the central and other counties for the hay harvest. The labor of New Hampshire is largely native, supplemented by Canadians. Eastern Vermont has little foreign labor, but west of the mountains there is a considerable Canadian element. Eastern Massachusetts employs French-Canadians and Italians in market gardening and other rural labor; in western Massachusetts, Poles and other foreigners are employed by the season or year. In Rhode Island a great many negroes, who have come from Norfolk in steamers running to Providence in the fruit and vegetable trade, have of late years made summer engagements with farmers and fruit growers, coming in the spring and returning in the autumn, and proving to be quite acceptable help. It is a life that suits the negro tendency to change, short terms of employment and odd jobs, with winter residence in old haunts in a mild climate. The labor of Connecticut is of a very miscellaneous character, Germans, Swedes, Poles, negroes, and others.

A few abstracts of returns, and quotations of salient points, from officials of colleges and agricultural experiment stations, representatives of agricultural boards or societies, and individual farmers of experience in the several States, are herewith presented.

MAINE.—President S. W. Harris, of the University of Maine, at Orono, writes that the number of hired laborers on Maine farms is comparatively small, most of the work being done by the owners of the farms, although there are many large establishments where gangs of men are used:

"Where one or two laborers are employed, especially in the central and upper counties, they are largely native New Englanders and the sons of neighboring farmers. These men are energetic, efficient, and active. In the coast counties, and in the vicinity of the great lumber mills the farm labor is largely from the provinces, and is slower and less skilled than the native labor.

"Employment is usually made by the month, except during the hay harvest, lasting 2 or 3 weeks, when the engagement is by the day. The native help upon farms, which keep only 1 or 2 men, usually board with the family of the farmer. The help of foreign extraction usually live in a boarding house or at their own homes in the neighboring villages or towns.

"The difficulty of securing good labor and its cost has led Maine farmers to invest largely in machinery and depend upon themselves and their sons for all work except when assistance is absolutely necessary."

Mr. Edward Wiggin, State agent of the Department of Agriculture at Augusta, says that in the central and western portions of the State the farm labor is generally native, that comparatively few farmers hire more than 1 man for the year, but in the hay-making season more help is required, much of which comes from Canada or Maine. In Aroostook County large numbers of laborers are required for potato digging, and they are mostly obtained from the French settlement on the St. John River. Mr. Wiggin says that tenant or share farming is not much in vogue in Maine; that some of these tenants are thrifty young men who work with the prospect of some day owning a farm of their own, while others are careless as to the future and only think of food and shelter for the present time.

Mr. B. Walker McKeen, secretary of the Maine board of agriculture, says that farm laborers are mostly native and resident of the places where they are employed.

"There are but very few foreign laborers upon the farms in Maine at the present time. By far the greater portion of these laborers are boarded in the homes of the farmers who employ them. A few are married and have homes of their own, and a few of the farmers have cottages that are occupied by their laborers. As a rule these farm laborers are fairly satisfactory, and are satisfied with their condition. The price of this labor is not far from an average of \$20 per month, with board."

NEW HAMPSHIRE.—The president of the New Hampshire College of Agriculture and the Mechanic Arts, Dr. Charles S. Murkland, says that it is in general hard to get farm laborers in New Hampshire; that efficiency is relatively less than that of the farm labor of 20 years ago; while the condition of the laborer has not greatly changed, except so far as it is dependent on his own responsibility. He thinks such differences as there are between the present and past condition of farm labor in New Hampshire may be attributed mainly to the easy communication between Canada and New Hampshire.

VERMONT.—President M. H. Buckham, of the University of Vermont and Agricultural College, reports that the amount of farm labor is generally sufficient throughout the State; that in many sections young Vermont boys can be hired who are excellent help, while on the west side of the State more foreign help is employed, the native born of either Irish or French parentage.

Mr. Homer W. Vail, statistical agent of the Department of Agriculture, makes the following statement:

"The native farmer boys constitute the bulk of the wage-earners in this part of the State upon the larger farms, and it is the best class of help. The help, both outdoors and in the house, are a part of the farmer's family, and are often as intelligent and well-bred and frequently well educated. They command a higher price than the Canadian French that are more commonly day laborers. They ordinarily have money and many of them become farm owners.

"I think boys employed on the farms here are a larger per cent of the saving class than those employed in towns, and their wages are as large, considering the necessary expenses, and the temptation to spend money is much less. In some portions of the State the French Canadian is employed, and often makes a good farm man.

"In those sections of the State where dairying has been the principal work for some years, the farmers refuse to employ crude help, or men having no experience in that work. The care of milch cows, milking and handling the product requires something like skilled labor."

MASSACHUSETTS.—Prof. William P. Brooks, of the Massachusetts Agricultural College, at Amherst, says that farm labor in towns remote from cities is scarce; that farmers almost uniformly, when the matter is broached, allude to the difficulty of finding satisfactory men, and that there is much difficulty in the locality in regard to the personnel of the farm laborers. He reports:

"In this part of the State—i. e., the Connecticut Valley, a large majority of the laborers are Poles, chiefly men, though I should say that the use of the women of that nationality for the lighter work of the farm is increasing. Near a large city, particularly in the eastern part of the State, Irish, Italian, and provincial laborers are most numerous, and Italian women are, to a considerable extent, employed in the lighter work of the market gardeners and fruit growers. In some localities French-Canadian laborers, both men and women, are in the majority. Most of the laborers are ignorant. In religion they are Roman Catholics. I report them as fairly honest and reliable, so far as their intelligence enables them to understand and remember what is wanted. Their blunders are due to a low grade of intelligence or lack of familiarity with our methods, or sometimes with our language. These laborers are less efficient than the best type of native laborers; but on the other hand they

do not expect so much, they work for lower wages and are satisfied to be regarded as servants, and I find many farmers prefer them, therefore, to natives for all except the most responsible positions, since the natives are likely to be exacting and very independent.

"In parts of the State far removed from cities, these laborers become permanent residents, and in many cases hire or purchase small places and work a part of the time for themselves. This is especially true of the Poles in this part of the State. A Pole is not satisfied to become a mere transient. He will never, if he can help himself, make an engagement to work except by the month. Near the cities the laborers are naturally more transient. They do not become attached to localities or to the family, but work to-day and to-morrow go elsewhere. Native farm laborers are very scarce, and as a rule are employed only in the more responsible positions, as teamsters, herdsman, superintendents, etc. It is my conviction that the change in the character of labor is in large measure due to the fact that the farmer generally wants to pay but very low wages. This, however, has become a necessity on the farms remote from cities because of the prevailing low prices for farm products."

Mr. E. D. Howe, State statistical agent of the Department of Agriculture, writes from Marlboro that for many years the farm help employed there has very largely come from Nova Scotia and New Brunswick; that they come and work on the farms for one or two seasons, when they gradually drift into the center as teamsters, clerks, or mechanics, and quite frequently settle down and become citizens. Each year a new supply of green hands is received, and they go through the same gradations. Not a few of them have bought small farms and are in business for themselves. They make an acceptable class of help.

RHODE ISLAND.—Prof. Joseph A. Tillinghast, of the Rhode Island Experiment Station (division of field experiments), says:

"The question of farm laborers is one of the most serious with which our farmers have to contend. Good farm labor is different from ordinary labor from the fact that it must be to some extent skilled labor, as there are many operations on the farm requiring judgment, promptness, and skill in performing them properly to the best advantage for the employer. This class of labor is exceedingly hard to find, and the demand is greater than the supply. Much of our ordinary farm help is, therefore, the common farm laborer, who requires much closer supervision, and in very few cases is as efficient as the skilled farm hand. On the island of Rhode Island considerable colored help is employed, quite large numbers coming from the South in the spring, working through the season, and returning South in the fall. These are said to be quite efficient help, in many instances working on the same farm season after season, thus getting acquainted with their duties and becoming somewhat skilled in their work. In the extreme eastern portion of the State and near some of the cities we find quite large numbers of Portuguese employed as farm help. These are usually rather slow to learn, yet after becoming acquainted with the work make fairly good laborers."

CONNECTICUT.—Hon. T. S. Gold, secretary of the board of agriculture of Connecticut, makes the following statement:

"There is a general scarcity of good agricultural labor, and especially of domestic help, at prices that farm products warrant, so that the wage laborer, if thrifty and temperate, is living better and laying up more money than ever before. While thrifty farmers get a good living, habits of expenditure in travel, education, etc., allow little accumulation unless special work secures extra profits, as in the tobacco industry, the weather and other conditions having been favorable and the market satisfactory.

"The agricultural laborers are following the city mechanics in demanding shorter time for labor. It comes hard to those who remember when work lasted from sun to sun to have the boy leave the hayfield at 4 o'clock to get the cows, that the men may be through milking at 6 p. m., to have the pleasantest part of the day to themselves.

"Our native New England farm laborers are few. The Irish and French Canadians have become land owners or gone into other occupations, followed by Germans, Swedes, Poles, and Italians. From these nationalities we get most of our domestic help. From the South we get some good colored women, but their desire to get back to their friends to spend their money as soon as they get a nice little sum interferes much with their gain to themselves or their usefulness in families.

"I employ 5 men with families, 2 or 3 children each. They are thrifty, steady, sober men. One is a Yankee, one a colored man from North Carolina, and the others are Poles. They will average over \$100 in bank each as annual net savings above expenses; and a colored girl from Virginia over \$50. We take as few chances as possible on those we employ, and have to pay the full prices usually prevailing here."

2. THE MIDDLE STATES.

In the States of New York, Pennsylvania, and western Maryland the work of the small farms is done mainly by the families, and additional labor is obtained to a considerable extent from the native population. In the larger operations of dairying, fruit growing, and market gardening laborers are required in considerable numbers. The skilled labor required in dairies, and most of the native labor is probably quite as efficient as formerly, but the least skilled, foreign and casual supply, can scarcely equal in efficiency the native labor of a generation ago. Near the large cities the proportion of foreign labor is greatest.

In the fruit-growing belt, in the tide-water region from the eastern shore of Maryland to the northern limit of Delaware, the colored element largely predominates, and in the fruit and truck growing districts in New Jersey it is considerable. There is a large foreign element in the labor of New Jersey, including Swedes, Germans, Hungarians, and Italians, many of them illiterate and relatively unintelligent. The farms of western Maryland are largely held by the descendants of Germans, industrious and thrifty, whose influence modifies the character of farming in all that region, and gives character to its labor as well.

New York.—Prof. I. P. Roberts, director of the experiment station at Ithaca, occupying the chair of agriculture in Cornell University, writes as follows:

"Comparatively few laborers are now employed on the farm. Modern machinery has made it possible for the owner of land to conduct the larger part of the farm operations with such assistance as his family may be able to give. This is not so true where large dairies are kept. In the western part of the State, in many cases a man is employed and furnished with a house, and his wife, and sometimes his daughters, assist in the milking.

"In this part of the State the recently arrived foreign laborer has not found his way into the rural districts. More and more the method of employing a married man and furnishing him with a cottage is practiced. The workman then lives with his family, and he receives about \$1 a day the year round, with some perquisites, such as a garden plat, fruit, firewood, a quart of milk per day, etc. In the grain districts young, stout men are usually employed at from \$18 to \$22 a month and board, for a period of 7 or 8 months.

"The native-born laborer is still efficient. The newly arrived immigrant usually is not. His plane of living is also lower than that of the American, and he usually is willing to work for less wages. This is not true where farms are situated very close to the cities. Since the foreign element prefer the city to the country, the better class do not come into the country as a rule. Those who can not find employment in the city too often go into the country, and so far as I am able to learn this class of laborer is very unsatisfactory, and can not be used to advantage except in the raising of such crops as sugar beets and garden truck, which require long hours and but little intelligence. It takes but a day or two to teach these people and their families to do the weeding properly. Most of them are entirely unable to perform the labor necessary on a farm devoted to mixed agriculture. As a rule they are very poor teamsters.

"I have been advocating for years the system of cottage building on the farm and the employment of laborers and their families throughout the entire year, so that they will not go to town in the winter and become demoralized. If this is largely practiced, it will be necessary to make some changes in the kind of crops grown and the amount and kind of live stock kept."

Hon. Charles A. Wieting, commissioner of agriculture of the State of New York, at Albany, says:

"Good farm labor is not abundant. Men of medium ability are fairly plentiful, but the riffraff, which is too unstable to find steady employment in shops and factories, which is too lazy to give a man a fair return for his money, and will not work when able to live without it, is plentiful. I know many young men in the State of New York who are getting from \$18 to \$26 per month, with board, the year round for working on farms, and there is always room for men of this class. On an average I do not think that farm help is as efficient as formerly. The men who are available do not know how to do as many different kinds of farm work as the older generation, and as a rule do not take as much interest in farming as they should. In the dairy and grain-growing sections it is largely transient. I think I am safe in saying that the farm help of the State is about evenly divided between native and foreign, being largely foreign in the vicinity of the larger towns and cities, and in the smaller towns and back from the railroads the help is principally native."

New Jersey.—Mr. John T. Cox, statistical agent of the Department of Agriculture for New Jersey, residing at Readington, reports agricultural labor of that State reasonably abundant and largely native. In the fruit, berry, and garden-truck districts

it is mainly colored, coming from the South and returning when the crops are gathered. In the dairy and general farming districts little change is noted in the average efficiency or wages of labor.

Mr. Franklin Dye, secretary of the New Jersey State board of agriculture, at Trenton, testified before the Industrial Commission that the condition of farm laborers in his State has improved; that hours of service are shorter, and machinery has relieved them of much of the drudgery of farm work, while they enjoy more of the comforts and conveniences of life; that while machinery has decreased the amount of labor in certain kinds of work it has not decreased the wages of labor generally.

PENNSYLVANIA.—There is apparently no surplus of farm labor in Pennsylvania, and in some sections at times there is a scarcity, as in the harvest season. The binder and other labor-saving devices dispense with a portion of the work, causing a noticeable decrease in the number of laborers employed.

As to relative compensation of agricultural and town labor, considering smaller cost of living and various perquisites and advantages, the general testimony is favorable to the relative prosperity of farm workers. Prof. G. C. Watson, agriculturist of the Pennsylvania State College, refers to instances of men moving from country to town, and vice versa, and concludes that the same men are succeeding quite as well in farm life in the matter of good living and the accumulation of property, saying nothing of the more wholesome influences surrounding his family in the country. Relative to perquisites in addition to wages he says:

"The farm laborer receives as a part of his remuneration many perquisites, the value of which is usually unknown in the towns and often underestimated in the country. So far as my observation goes, farm laborers usually receive either house rent, firewood, cow pasture, garden or fruit, or all of these, in addition to a fixed sum of money per month or year. These conditions exist largely where married men are employed and tenant houses provided. Single men who live with the families of their employers secure board, room, washing, and other perquisites, besides a stipulated sum of money per month or year, as the case may be. These conditions are unknown in our cities and towns among skilled laborers."

DELAWARE.—The statistical agent of the Department of Agriculture, Mr. John J. Rosa, reports farm labor in Delaware abundant, such as it is; that it is all native and nearly all colored; that the only really reliable is the old stock, the young being nearly worthless. He says that the help was reliable 30 years ago, but is not so now. The cities of Wilmington, Philadelphia, and New York attract the more enterprising, and female help for the household is difficult to obtain.

MARYLAND.—Prof. H. J. Patterson, director of the experiment station of the Maryland Agricultural College, estimates 75 per cent of the farm labor of eastern Maryland is colored, while in northern and western Maryland not more than 10 per cent of the laborers are colored. He considers colored labor retrograding and white labor improving. He notes the tendency of the younger colored people toward cities, where they acquire tastes and habits unfitting them for country life, making them unsteady and unreliable, and a hindrance to agricultural progress. The older people who remain on the farms are generally satisfactory to employers. In the sections where white labor predominates there is a large German element, industrious and thrifty, willing to do any necessary work to advance their financial and social condition. In these sections a considerable part of the work of the farm is done by the farmer himself and his children, and any supplementary labor is performed by persons of the same social class.

In grain-growing sections, labor is usually employed by the month, while in tobacco-growing regions day labor predominates. The laborer is usually boarded, but the tendency is toward paying wages without board.

Mr. J. A. Hayden, Maryland statistical agent of the Department of Agriculture, living at Mountain Lake Park, in the western part of the State, says that labor is more efficient than formerly; that it is scarce in this region, owing to demand for labor in lumbering and mining, and prices are high (\$1.50 per day) for cash laborers. He reports a tendency to shorter hours of labor, and says that payment is usually made in cash, the share system being unknown.

3. THE SOUTHERN STATES.

The productive labor of this section has three elements, small farmers, white laborers, and colored laborers. The first, and a very important constituent, is the small farmer in Virginia, the more elevated parts of North and South Carolina, the mountains of north Georgia, and the pine lands of the southern counties, the hill lands of northern Alabama, eastern Tennessee, and scattered throughout the cotton belt, wherever level plains or alluvial soil, suited to extensive culture of cotton, are not

found. Some of these farmers may employ a little labor, but most of them produce what is required for subsistence, with a few bales of cotton for the purchase of clothing and food products not obtained from the homestead acres. This is not technically the "farm labor" with which we are dealing, but it represents a class of the population which is the source of nearly all the white labor employed in the South and working for wages or "on shares." It is in imitation of the independence of this class that colored laborers, in a proportion so very large heretofore and now, elect to become, in a small way, tenant farmers, or, if absolutely without capital, contract for the cultivation of small areas on shares, as the nearest approach to independent farming. The white farm labor class is a small one relatively in the great cotton districts, and the positions requiring skill and intelligence are largely filled from it. Where responsibility must be exercised, in the larger and in minor details of management, many of the more capable of this class are required. In the hilly and mountainous sections referred to, where commercial agriculture gives place to provision for family wants, with only a moderate surplus for cash markets, the labor hired is only in limited amount, but it is in very large proportion white. In some districts that surplus product is mostly cotton; in others tobacco, peanuts, watermelons, peaches, small fruits, or vegetables.

The colored race almost monopolizes the large cotton plantations, which occupy really a small part of the area of the so-called cotton States—a tenth part of North Carolina between tidewater and the hill country, a similarly situated district in South Carolina, a belt of considerable breadth in middle Georgia, the famous "Black belt" of Alabama, the alluvial soils of Mississippi (including the famous Mississippi bottoms between that river and the Yazoo), similar lands in northern Louisiana, and the central cotton lands of Texas and the bottom lands of its great rivers. These cotton lands are flat river bottoms, or more or less level plains, or rolling lands, or rich soils not too rough and uneven for cultivation. Only small areas in limited districts east of Texas were originally prairies. Most of these lands were heavily wooded, requiring extensive clearing. The great plantations are mostly broken up; as it is difficult to employ laborers, at wages payable in cash, few accepting contracts for service controlling their time and movements, as they can not reconcile anything that recalls the ancient regime with their ideas of freedom. They prefer renting, the rent almost always payable in cotton, usually a prescribed share of the product; but if they have no mule equipment or implements of culture, they accept a certain share of the cotton produced, in lieu of wages.

The reports of the condition of colored laborers are not so favorable as might be desired. Some claim improvement, but most of them are unfavorable, declaring decrease of efficiency, especially in the younger generation, which seems to be ambitious of city life and occupations easier or more agreeable than those of agriculture.

VIRGINIA.—Mr. Wells A. Sherman, statistical agent of the Department of Agriculture for Virginia, living at Vienna, near Washington, says that laborers are mostly native; that employment is more general than in the recent period of business depression, and the payments are usually in cash in the northern part of the State. Since the introduction of binders, the labor of harvesting grain is greatly reduced, fewer men are needed, a large part of the labor being done by the regular farm force. The division of the State into crop belts, quite as various as those of New York, causes widely variant conditions of labor. General farming is in nearly every part of the State supplemented by some specialty, as cotton in the southeast, tobacco in the southern tier of counties, fruits and vegetables in the tide-water region, peaches and apples in some parts of the Shenandoah and Virginia valleys, dairying to some extent in this region, while stock growing and grain production are permanent in some of the western mountain and valley counties. Of colored labor Mr. Sherman says:

"It is generally said that our colored labor is growing more worthless and drifting more largely to the cities. I am not sure that this is true, but in my vicinity I am sure that fewer of the young men are buying land than 15 years ago, and being free to move are a much less stable element in the community than were their fathers, and I should think the number of colored families living in rented houses was from 40 to 50 per cent greater than 15 or 20 years ago."

Mr. F. P. Pope, of Southampton County, Va., in the southeast section where cotton is grown in a few counties, represents colored labor as scarce, hard to obtain, discouraged by the low wages (\$8 to \$12 per month), caused by the low price of cotton, and mostly undesirable, though the better classes who work are doing fairly well.

Mr. W. H. Norman reports from Henry County, on the southern border in the tobacco region southwest of Lynchburg, and presents a gloomy picture. He says the old Virginia negroes are nearly extinct as a class of trained and reliable laborers; that their children as a rule are a shiftless, thriftless set, with no ambition to better

their condition; that they will walk 10 miles to a meeting or cake walk, but are not anxious to work and want only a pistol, a deck of cards, or a banjo, and if they work will spend their wages for things of no earthly value, and care nothing for to-morrow. "If he gets a little education, he sets his hat on the side of his head, sticks his gun in his hind pocket, and starts out as a political leader or a preacher."

He explains that labor was demoralized by too much prosperity when tobacco was very high, the laborers becoming spendthrifts and gamblers, frequenters of saloons, and idlers. At the same time farmers quit raising hogs and other provisions, and now that tobacco is low are in distress and discontent.

Mr. I. C. Fowler, of Washington County, in the extreme southwest, remote from markets, where grazing is the principal rural industry, the farmers producing limited quantities of the products required for home consumption, says that the labor is mixed (white and black), equal to the demand, and satisfactory as to efficiency. Much of the work is done by members of the farmers' families. On the eastern border of the county are the Matheson alkali works, which employ nearly a thousand hands, with the Wise County coal mines 50 miles away to the northwest, and these industries absorb the surplus labor and afford a market for surplus products, advancing the thrift of labor, of which there is no longer any complaint of nonemployment, and of course the price of labor has been advanced. This county, the most remote of these localities, affords a striking contrast to the condition of the tobacco and cotton counties named.

Mr. George L. Ewart, of Bedford County, west of Lynchburg, reports that there is a sufficiency of help, white and colored, but the best of it is drawn off by competing industries, and what remains is very inefficient, the white being as bad as the colored. He says:

"I had made the best selection I could from a number of applicants; made a positive bargain, and yet the man was persuaded to break it. I tried again with the same result, gave up in disgust, and am hiring 2 negroes and letting the whites alone."

Mr. A. Rothgeb, of Page County, says that their most reliable laborers are able to become land owners; that the less energetic are ambitious to own a house and lot, which, being accomplished, sometimes "begets a feeling of independence and a disposition to idleness." He thinks that the fault is their own if they are not thrifty, and recalls working at 50 cents a day at the close of the war, and buying a bunch of cotton for \$4, such as he has bought since for 90 cents. Wages are now \$10 to \$14 a month, with board, and much more in harvest. Sawmills pay about the same, but suspend in harvest time, using their engines for the thrashing, and furnishing thrashers and men and teams to draw water. Native laborers are abundant.

NORTH CAROLINA.—Prof. F. E. Emery, agriculturist of the North Carolina Experiment Station, at Raleigh, reports that the labor of that part of the State is mostly colored, while that of the western counties is mainly white. He doubts whether labor is improving much, as the young people are generally averse to work, though he indicates some recent signs of advance in more attention to having the young men work. Wages of common laborers are \$8 to \$10 per month and board.

SOUTH CAROLINA.—Prof. J. S. Newman, occupying the chair of agriculture and horticulture in Clemson Agricultural College, writes as follows:

"Farm labor grows less efficient as the trained ex-slave disappears from the scene of action and as the managers familiar with negro character retire from the farm. In the vicinity of towns and villages some are acquiring homes, and either rent small tracts of land or depend upon jobs by the day.

"In the country no appreciable improvement or change in the status of farm labor has taken place in years. In the whole State about 80 per cent of strictly farm labor is done by colored people.

"Share contracts vary, with the ability of the laborer to furnish more than his muscle, from one-fourth to one-half the crop, usually the share-cropper doing only such work as is necessary to 'make the crop.' The land owner's share on rolling lands will rarely more than keep up repairs in land and betterments. Contracts for cash wages are less in vogue since the ruinous fall in the price of cotton.

"There is some increase in the number acquiring homes, but this is mainly confined to the vicinity of towns. There seems to be a tendency for the educated negro to leave the farm. In fact, this tendency is not confined to the colored race."

GEORGIA.—The director of the Georgia Experiment Station, Prof. R. J. Redding, reports on the status of farm labor, as follows:

"The common labor of the country is divided about equally among the white and negro races. In middle Georgia and a considerable portion of southwestern Georgia the larger proportion field labor is performed by negroes. In southern Georgia and north Georgia the reverse is the case, a large majority of the laborers being white. I can not say that the efficiency of the labor is increasing or diminishing. It has

"reached about a stationary point. I do not think the laborer, as a rule, is saving anything or making a home. Few rise to the top or take advantage of opportunities and secure homes, but the large majority of the laborers are in the same condition that they have been for years past—that is, they live 'from hand to mouth' and are content at the end of the year to have a few dollars to spend for Christmas, and are willing to start out on a new year, and do so cheerfully, without having laid up a single dollars' worth of anything.

"I can not say that there is any material change going on in the system of paying for labor; that is to say, I do not see any special tendency to pay cash wages."

Professor Redding regards the future of agricultural labor in his State as very unpromising, and believes that under the existing industrial system the lowest class of labor, the unintelligent field hand, will never receive anything more than a bare subsistence. Occasionally a man, by persistent industry and economy, saves something and secures a home, but the man of labor, with wife and children to support, is able to procure only enough to supply the absolute necessities of life.

Ex-Governor W. J. Northen, manager of the Georgia immigration and investment bureau, writes:

"Farm labor in some sections of the State has grown scarce. This is especially true in eastern middle Georgia. In the greater part of the State there is an abundance for all necessary purposes.

"In many parts of the State there has been change favoring the wages system. The large preference is, however, for renting or share of the crop. The latter gives more time that the laborer can control as his own, and this condition the negro much prefers. The usual method is for the landlord to furnish the land and the laborer the service, and divide equally. A 1-horse farm consists, generally, of 40 acres. The laborer pays rent for the mule and about two bales of cotton for the use of the land.

"The character of the labor is about as it has been for several years past. It is hardly possible to tell the future of the labor of the South. There is so little stability in the character of the negro that there is not much calculating as to what he will do under any given set of conditions. If the South continues to plant cotton, the negro will remain the same for years to come. If there should be changes in farming there will come great revolution in the labor question."

FLORIDA.—Hon. L. B. Wombwell, commissioner of agriculture, writes as follows:

"The farm labor throughout all sections of Florida is doing well. There is an abundance of work for all who wish it, at good wages, which they get, when due, in cash or its equivalent, as they elect, in some article of trade. Labor is plentiful, though there is no surplus of account. Those who are idle are so because they prefer it. In the northern and western portions of the State, where the farming is carried on on a large scale, the greater part of the labor is composed of negroes, while the whites, owners of small farms, employ mixed labor, doing much of it themselves. Complaints among the laboring classes are few, if any, and there is no such thing as want ever heard of; all are satisfied. The quality of labor is fair and generally efficient. In the eastern and southern portions of the State, in the fruit and truck growing sections, the labor is mixed to some extent, the whites predominating more and more as you go south. In other respects the same conditions prevail as in the sections first named.

"In the first-named sections of the State, the methods of payment vary according to the conditions, or needs, of the contracting parties. In some cases all cash is paid; in others part cash and part of the crop, which is divided at the end of the year. Then another method, which will probably include one-half of the whole, and is popular with both parties, is the renting of small tracts (say 40, 80, or more acres) to the laboring people for a certain fixed portion of the crop, this to be paid when the crop is harvested. In the eastern and southern sections cash, with board, is the customary method of payment. In fact, in all sections where cash is the entire remuneration board is included. This of course does not apply to hands employed in mills and other manufacturing industries. Taking into consideration all conditions, the average laborer and his employer are working harmoniously, and both are prospering."

ALABAMA.—Prof. J. F. Duggar, agriculturist of the experiment station of Alabama, thinks that two-thirds of the farm labor of Alabama is colored, and holds that efficiency is rapidly and unmistakably diminishing. About one-fifth work for wages in cash, according to his estimate, and not half as many as formerly work under direction of the farmer on the share system. They prefer to rent land and control their own movements. In sharing, it is usual for the laborer to receive one-third of the cotton, or one-fourth of the corn, for labor done. If he feeds himself, he gets half

the crop, but pays for half the fertilizer, when any is used. Of the thrift of the colored laborer Professor Duggar says:

"It is very rare for laborers on the farm, either for wages or on the share system, to save any considerable amount of earnings. If he does so, it is invested in a mule and other equipment necessary for renting land. After a good crop year, a share hand may have sufficient savings to begin renting. A renter may have a small surplus with which to make a first payment on a land purchase."

TENNESSEE.—Dr. Charles W. Dabney, president of the University of Tennessee, and formerly Assistant Secretary of the Department of Agriculture, furnishes the following statement:

"All kinds of agricultural laborers are becoming scarcer each year in the neighborhood of cities and along railroad lines. The tendency is for laborers to move about more and more. This is especially true of the cotton and trucking districts of west Tennessee. This is very bad both for laborers and employers. Our young negro men are becoming tramps, and moving about over the country in gangs to get the most remunerative work. Colored labor still forms the bulk of farm labor in middle and west Tennessee. There is less of it in east Tennessee. More small farms in eastern Tennessee are cultivated by their owners. I think there is a slight increase in the number of contracts made for cash wages by the month, but this is because labor is moving so much. The older men, with families, who live at one place, still crop on shares. On the whole, the condition of agricultural labor in Tennessee is very unsatisfactory, and seems to be growing more and more so. Around towns it is very difficult to get satisfactory labor at all."

Mr. T. H. Reeves, statistical agent of the Department of Agriculture for Tennessee, claims that there has been an increase in the efficiency of farm labor each decade since the war. He notes that cash-payment wages is becoming more general, but that renting lands for part of the crop is still in vogue. Ordinarily the owner receives one-third of the crop as rent, but the proportion depends somewhat on the fertility of the soil. On the better grades of land, the owner furnishes land, the stock to work it, and the seed, for one-half the produce. For bottom lands, new grounds, or highly improved lands, the owner gets either one-half or a stipulated cash rent.

He estimates the distribution of labor by races in east Tennessee at 85 per cent white, 15 per cent colored; doubtless a much larger proportion of colored people live here, but prefer to work in towns or cities. He states that he does not know of an instance of a colored man or woman, who has acquired a fair education, going to the country to live in any capacity.

MISSISSIPPI.—Prof. E. R. Lloyd, of the Mississippi experiment station, writes:

"There is only one section of this State where the custom is to employ farm labor for cash wages to grow cotton, and that is in the delta, where the farms are large and little except cotton is grown, and each plantation has a manager or overseer. The delta land produces a bale per acre and often more, and the cotton grown there has a better staple and will bring at least 1 cent per pound more than cotton grown on upland. On the hill farms it is not the custom to pay cash wages. The farmer furnishes land, implements, and teams, and the tenant furnishes the labor and takes part of the crop produced for his wages. We call this the 'share' system, and nearly all the farmers in this section farm on the share system where cotton is grown. Cotton at 4 or 5 cents on hill farms prohibits cash wages in its production. When cotton brought 8 and 10 cents, farmers could then pay cash wages and make a profit out of cotton. Our farm labor last year was \$7.50 to \$8 per month and rations—1 barrel of meal and 16 pounds of meat per hand per month. Where no rations are furnished, the rate of wages runs from \$10 to \$12 per month. The low price of cotton certainly was very discouraging to both grower and laborer. The small 'upland' farmers generally employ 1 or 2 wage hands to do the plowing, and give them (if good, stout men) \$8 and rations per month, and the hoeing and gathering of the crop is done entirely by day hands. The average wages per day for hoeing is 40 cents and feed, or 60 cents without feed, and all the gathering is done by the 100 pounds. Average price for picking cotton is 40 cents per hundred. Our labor is all colored, and is growing more worthless and harder to manage each year."

ARKANSAS.—Hon. Frank Hill, commissioner of agriculture of Arkansas, writes that of the lands rented to white farmers about half are for cash, while the negro laborers rent for a share of the crops. He considers colored labor less valuable than formerly and becoming scarce. More farm implements are used, and cotton is produced with fewer hands and less cost.

LOUISIANA.—Dr. W. C. Stubbs, director of the experiment station in Louisiana, gives the following explicit account of the varied and somewhat peculiar labor distribution of that State:

"The status of agricultural labor is somewhat different in the cane fields of southern Louisiana, the rice fields of southwest Louisiana, and the cotton fields of northern Louisiana. In the cane region of southern Louisiana, the laborer lives in houses upon the plantations, and is employed exclusively by the day, wages varying from 65 cents to \$1 a day. These houses or cabins are furnished free, with the cabin firewood and a small garden. The laborers are worked in gangs, superintended by an overseer or manager. In this section of the State it may be perhaps asserted that from one-third to one-half of laborers are white (chiefly Italians), and the remainder negroes. Of course this labor is confined almost exclusively to the fields and is engaged in heavy work—plowing, hoeing, cutting cane, loading, etc. When we get into the sugarhouse, expert labor of a more intelligent character is required and utilized.

"In southwest Louisiana, where rice is largely grown, the labor is divided between the whites and the blacks. Many small white planters do their own field work, while the more extensive ones hire both white and negro labor. The number employed in the rice industry is not so great as in the sugar districts, the sugar interest requiring perhaps a larger number of laborers per acre than any other planting industry.

"In northern Louisiana we find two entirely distinct systems of planting and farming; one is the large cotton planter, situated in the Mississippi and other valleys of the State, with large plantations, cultivated by either what we call 'croppers' or 'renters' and in a few instances with hired labor. The consideration paid laborers there is as follows: For croppers, where the planter furnishes the land and team, one-half of the crop; For renters, usually a stipulated amount, either in money or by a certain part of the crop. This style of farming prevails to a very large extent throughout the alluvial portion of northern Louisiana. There are a few planters cultivating their own crops with hired labor.

"In the 'hill' section we find a majority of the small farmers doing most of their own work, hiring occasionally both white and colored labor to assist them. Occasionally we find, besides the crop cultivated by the owner of the place, a few tenants who rent or crop after the manner described in the alluvial districts.

"Outside the sugar districts it is difficult to get at the price paid for labor per day, as nearly everybody works upon one of the two systems above given, and therefore the receipts for his labor are variable, depending largely upon the quantity of crop made and the price obtained therefor.

"In the eastern and one or two other local areas of the State truck growing is largely practiced, and while supervised, and, perhaps, in many instances directly managed by the owner of the land, a large number of the laborers are employed in the gathering and marketing of the crop. Here, too, we have both white and colored labor.

"As a rule the laborer of this country is not improving; he is, perhaps, more uncertain, more unreliable, harder to find, as the years go by. Especially is this true of the negro, who is being gradually displaced by immigrants from Italy and other countries. I should say that to-day the negroes probably constitute two-thirds to three-fourths of the actual laborers of the State. The remainder is white. But there is a large number of farmers in the northern part of the State who own the land and are comfortably and nicely fixed, who perform a large percentage of their labor.

"The tendency of our colored laborers is toward the cities, railroads, sawmills, etc. This is probably due to two facts—first, gradual reduction in the price of our chief staples, which has discouraged to a large extent the growing of crops upon the share, or cropping and renting system; secondly, to the fact that the young colored laborer is exceedingly anxious to 'see the world' and to mix and mingle with the strife and excitement of city life. The prospect for the future is rather gloomy. The question is exceedingly serious, and will require the wisdom and patience of our best statesmen to bring out of it a satisfactory solution."

The statistical agent of the Department of Agriculture for Louisiana, Dr. S. A. Knapp, of Lake Charles, says that in that part of the State the white farm laborers rarely remain such long, becoming share farmers or the proprietors of land, paying on the installment plan. They are frequently sons of neighboring planters. Many are from the Northwestern States, and are reliable hands. There is a scarcity in the supply, owing to the demand for labor in lumbering and manufacturing. He says that colored laborers are inferior to whites in efficiency, requiring so much supervision, though in character superior to the town laborer of the same class. He reports some increase of thrift among colored laborers—more of a tendency to acquire homes—and thinks that, if aided and encouraged by intelligent white men, a large proportion of the colored rural population would own farms, adding: "I have tested this by

actual experiment, and find quite a proportion of the colored people will buy small farms if they have the chance, and become thereby much better citizens."

TEXAS.—The commissioner of agriculture of Texas, Hon. Jefferson Johnson, says, relative to the condition of the farm laborers of the State, that "they have given up the idea of being able to make anything more than a living out of their labor, and have therefore accepted the situation, and are, to a certain extent, satisfied to remain as they are, 'hewers of wood and drawers of water.' In the southern portion of the State the colored labor is largely in excess of the white, while in the central and northern parts of the State whites largely predominate." Mr. Johnson does not think colored labor is improving, either in morals or efficiency, but apparently deteriorating in both.

Mr. H. H. Green, the State statistical agent of the Department of Agriculture at Hallettsville, Tex., reports that while the population of that county is only about 15 per cent colored, the hired farm laborers are about 50 per cent colored, and that they are not as efficient as the white laborers, unless the foreman is with them. He says:

"The white renter usually pays money rent, but with the colored renter the share contract is in vogue. Where he is able to furnish his own team and tools, he pays the landowner one-third of the corn and one-fourth of the cotton he makes. Where the landowner furnishes everything, they divide equally. As a rule, the colored people seem to be trying to save nothing, but spend all they can get and, in many instances (where they can get credit), go into debt. One farmer and stock raiser told me to-day that most of the colored men in the county who owned farms were so badly in debt that if their homes were sold they would not more than pay them out. There is no marked tendency to change conditions in this county."

Prof. B. C. Pittuck, agriculturist of the Texas Experiment Station, says the demand for intelligent farm laborers is increasing; from the increase of diversified and intensive farming there is a growing demand for skilled labor, which constantly exceeds the supply. He says that two-thirds of the laborers are negroes and Mexicans; that many are employed at cash wages throughout the year, though the share system is extensively followed, the landlord usually receiving one-third of the crop.

4. THE CENTRAL WEST.

In the northern belt of this great central district, between the Great Lakes and the Rocky Mountains, the laborers are in part native Americans, ambitious to acquire homesteads, and largely foreigners of the better class from northern Europe, Norwegians, Swedes, and Danes, who are intelligent, industrious, and frugal, soon establishing themselves in homes of their own. In the Ohio Valley, a region with no waste land, and very little surface area unoccupied by farms, settled by the citizens of the Atlantic Coast States and by the more progressive of immigrants from European countries, farm laborers are mostly allied by kindred or association with the resident population, constituting a body of farm laborers unequalled, in intelligence and adaptability to environment and to changing agricultural conditions, in any foreign country. A lower class of laborers, for the simpler and least skillful kinds of service, are foreigners and transients from the cities. The floating population seeks particularly the grain-growing sections, and predominates in the harvest seasons of the northwest and central belt beyond the Mississippi. That fertile and thrifty stock-raising and grain-growing country, comprised in Iowa, Nebraska, Kansas, and Missouri, is full of the latest improvements of agricultural machinery, and farm operations are so facilitated and the cost of production cheapened that the farmers do their own work with fewer hands and are able to pay for the best.

This reliable help for the main operations of the farm, able to manage machinery and care for farm animals is, therefore, better than formerly, while a lower grade of service, in simpler and cruder operations, can be and is undertaken by persons of less skill, reliability, and permanence of employment. The advance of mechanical and scientific cultivation, led by trained experts in various lines of rural industry, has its influence in elevating the average efficiency, so that it must be admitted, on the whole, that labor tends to a higher rate of efficiency than 30 years ago.

WEST VIRGINIA.—Prof. J. H. Stewart, director of the experiment station of West Virginia, states relative to agriculture and its conditions:

"Upon a majority of the farms in West Virginia the labor is done by the owners or their sons, the farms being usually small in area. In sections of the State, however, permanent labor is necessary, and is employed at a rate of wage ranging from 50 cents to \$1.25 a day. Where the maximum wage is paid, it is without board or lodging. As a rule the laborers are Americans, principally West Virginians, and there are very few of them who can be termed 'professional' farm laborers. I mean by that there are few who spend their lives as wage-earners upon the farms.

Much of the hired farm labor is performed by persons who spend a portion of the year at work in mines, timbering, railroading, work in factories and on steamboats, giving their attention in slack times of the year in such employment, to engagements upon the farm. In the early history of the State, the larger part of the laborers were negroes, who, however, represent a small percentage of that class of laborers in this State at the present time. An abundant supply of laborers can be had as a rule; recently, however, the great stimulus to manufacturing, mining, railroading, and oil production in West Virginia has called away laborers from the farm to such an extent that it has been somewhat of a serious problem in some sections of the country to get enough labor to perform the actually necessary work.

"The tendency in this State is to the division of farms into small holdings, thus reducing, as a consequence, the proportionate demand for farm laborers as such. The remuneration has changed but little during the last few years, and, taking into consideration land allotments and small perquisites to farm laborers who reside upon the farms, in comparison with that class of laborers in other engagements, there is but small difference in the rate of wage.

"In many counties the regular farm employees reside upon the lands of the owner and receive land and other conveniences which go as part remuneration for their services, in addition to a stated wage.

"I am not prepared to say that farm laborers are improving in their efficiency, due to the fact, largely, that they are not permanently employed in that capacity, much of the labor being done by those persons who give the larger part of their time to work in the mines, factories, etc. The improvement in the construction of better homes, the neatness in methods of farming, and a clearer understanding of the adaptability of lands to special lines of agriculture, and of the principles which underlie successful husbandry is very noticeable in this State. Also a marked tendency to specialization in agricultural pursuits, such as the growing of large or small fruits, trucking, poultry raising, etc."

Hon. W. Atkinson, President of the State board of agriculture of West Virginia, reports that agricultural labor is scarce all over the State, owing to the building of railroads, laying of pike lines, and the great activity of all kinds of business in cities. He says that the reliable men work for good wages a few years and then go into business for themselves, leaving a less desirable set of farm hands. He finds that farm machinery greatly reduces requirement of farm labor, enabling the farmer to do most of his work with horsepower. He says:

"The farmer must be a merchant these days, and a good horseman, and can then do lots of work himself. Another relief the farmer has is—the young ladies of the farm drive the binder, the mowing machine, and horse fork—so you see the thrifty farmer is forging ahead if labor is scarce. The beauty of it is, the farmer who owns his land is the most independent man on the globe."

OHIO.—Prof. Charles E. Thorne, director of the State experiment station at Wooster, states that for 2 years farm laborers have been more and more difficult to get, and more complaints of inefficiency are heard, especially near the larger towns. He does not see any marked difference in rate of wages, but thinks that the contracts of this year will show an advance. This scarcity appears to show that many laborers prefer town employment.

Mr. Thorne kindly obtained statements from his farmers' institute workers in different parts of the State, the gist of which is presented herewith.

Mr. W. W. Farnsworth, of Waterville, says that laborers are abundant except in the neighborhood of cities. He thinks that men of moderate ability enjoy as much comfort and endure as few hardships on the farm as in the city. He believes that it would be better to build tenant houses and hire by the year.

Mr. John Begg, of Columbus, says the supply is sufficient and efficiency all that could be expected of unskilled laborers; the compensation good, farm hands being better paid than town laborers, and saving more money.

Mr. John Shawver, of Bellefontaine, says that single men get \$13 to \$18 and board, according to ability, and many are indolent, and add:

"I pay \$20 per month for 5 months and \$26 per month the balance of the year. We furnish a comfortable house of 4 rooms, good garden, truck patch, some fruit if any can be spared, privilege of keeping cow (we furnish the cow also, at present), 2 hogs, 25 hens, fuel, team and wagon to do hauling, and horse and buggy for occasional use. The man I have was raised on the farm and did farm work till he was about 28 years old, and had saved \$1,200. He then went to the city, married a city woman, lived up what he made and also what he had previously saved, and then decided to go back on a farm again. They had little furniture, poor clothing, and not a dollar when they moved on my place, but are now picking up a little, piece by piece."

Mr. O. E. Bradfute, of Cedarville, reports labor scarce at harvest seasons, and the transient laborers are not of the highest quality. In his vicinity men from towns say that they can save more at 90 cents per day in the country than at \$1.25 in the town. Mr. Bradfute pays on his stock farm \$1 per day and furnishes firewood and house, but gets \$1 per week rent. This is about the highest rate paid in the county.

Mr. George E. Lawrence, of Marion, considers the labor supply ample, the quality efficient, and that the remuneration, in view of its purchasing power, compares favorably with that of other unskilled labor.

Mr. Alva Agee, of Cheshire, says that efficient farm labor is not abundant in his vicinity, and complains that manufacturers can pay higher wages and so get the more efficient.

Mr. J. H. Lehmann, of Savannah, a breeder of National Dickinson Delaine Merinoes, says that laborers are scarcer than ever before known, that wages have advanced fully 20 per cent in 2 years, and that farm labor is the best paid of all unskilled classes of labor. City competition has drawn heavily on the country supply; hands for 8 or 9 months are given \$17 to \$20 and board, washing, and in most cases a horse keep besides.

Mr. Charles McIntyre, of Chandlerville, reports that skilled farm laborers can not be had at any price, and unskilled are scarce and high priced. Many farmers hire by the year, and pay \$12 to \$20 per month and furnish house, garden, cow pasture, wood, and the privilege of keeping poultry. As to relative cost of living, he says: "We have in our village laborers who tried it in Zanesville and got \$1.50 per day who say they can do better here working at \$1 per day."

Mr. George E. Scott, of Mount Pleasant, says it is difficult to obtain efficient help; that compensation is lower than for other unskilled labor, but as much as prices of products will warrant. He says he pays \$175 per year, but would be willing to pay \$300 for one who "finds himself."

Mr. J. Al Dobie, of Gutman, Auglaize County, says that during the summer and autumn months labor is rather scarce at \$1 and board. In winter it is fairly abundant at 75 cents per day. Laborers employed from 6 to 9 months receive \$14 to \$20 per month and board, and they are quite efficient.

INDIANA.—Mr. W. W. Stevens, of Salem, Ind., reports that the outlook for the farm laborer in his section of the State for 4 or 5 years has not been very favorable; that farmers have manifested a tendency to limit the amount of labor employed, and often to forego outside aid in the winter months as far as possible, as farms are not as extensive as in the northern and western sections of the State, their owners depending largely upon the labor resources of members of their families. In fact, he says the supply of labor here has been in excess of the demand, and that unmarried men have therefore sought employment and better wages elsewhere; that a tendency exists to employ married men who board themselves; that a majority of farm laborers expect to work no longer than till they can find better places in quarries, mines, and factories, a condition not conducive to efficiency, while a class exists that does not possess the ambition to be efficient in anything. There are few colored or foreign laborers. Wages are now increasing.

Prof. W. C. Latta, agriculturist of Purdue University and superintendent of farmers' institutes in Indiana, states that there is often a lack of farm laborers, and this not infrequently happens when there are plenty of men wanting employment in the towns. He thinks the condition of the farm laborer compares favorably with that of the unskilled laborer in other fields, with perhaps this exception, that he has no longer hours without a definite time for beginning and quitting work; and that, considering the cost of living, the remuneration of the farm laborer is better than that of many other unskilled laborers.

MICHIGAN.—Dr. R. C. Kedzie, professor of chemistry in the Michigan Agricultural College, says that farm labor is in greater demand and its condition improved, stimulated by new industries, sugar-beet growing, fruit canning, increased attention to dairying, and the activity of other industries. Laborers are of two classes: The sons of farmers and mechanics, who work to obtain means to buy a farm home (Germans and Scandinavians being in the same category); and a second class, mostly Italians and Poles, who prefer the cities and employment as street laborers and scavengers, but are employed to some extent in market gardening, seed growing, and casual farm operations.

The development of new industries to diversify production and bring money into the State is rapidly increasing the demand for labor and increasing the rate of wages, especially the new beet-sugar industry, the growing of celery on former unsightly and useless swamps, and the production of cement to take the place of that brought from Nova Scotia, New York, or Louisville.

Mr. C. H. Morse, statistical agent of the Department of Agriculture for Michigan,

reports that Michigan farm laborers are perhaps 60 per cent natives and 40 per cent foreign—Germans, Scandinavians, Canadians, Irish, and others. During the period of depression farmers hired less help, and more laborers were idle than before or since. Many laborers own homes or are striving to obtain them, while many others appear to be satisfied to live from hand to mouth, and when sickness, or other adversity comes, they are liable to become a public charge, or to allow the doctors or tradesmen to wait for their pay, not infrequently exemplifying the adage, "Hope deferred maketh the heart sick." He bewails the tendency to go to town to live, and says that no farm laborer need to be idle in Michigan.

ILLINOIS.—Prof. Eugene Davenport, of the College of Agriculture of Illinois and director of the experiment station, testified before the subcommission on agriculture of the Industrial Commission, August 12, 1899. Comparing the present time with 20 years ago, he noted a tendency to employ older men, though most of the labor is still performed by young men. The laborer is now employed by the month, a house provided, a patch of land furnished, the keep of a cow, or similar perquisites or privileges granted. The laborers are mostly natives. Many of the unmarried men come from Germany or Scandinavia. Labor is more complicated on account of the larger use of machinery, making demand for greater skill for a part of the work, but for some of it less manual skill is required. There are few expert binders or cradlers, as they are not now needed. On the question whether agricultural machinery has reduced the number of laborers, he said:

"That there is as much call for labor on the land as there ever was, and that the call is as sharp and continuous—that is, as far as my observation goes. The introduction of machinery has vastly extended agricultural operations; it has extended the acreage under cultivation, and has increased the amount of labor bestowed upon the land per acre. I do not think it has decreased the number of men or the total employment of man power on the lands of the country. In other words, it is not to be taken for granted that if a machine is introduced which can do the labor of 10 men that 9 of them will be crowded out of employment. I would like to add in that connection that it is oftentimes forgotten that the amount of labor that may be put upon an acre of land varies between very great limits. It may be very slight, in which the crop produced may be one of the gross crops, yielding very light revenue per acre; or it may be very great, yielding such a crop as sugar beets or some of the more intensive products. I think the introduction of machinery has intensified the labor which has gone upon the land—enabled us to put more labor on our land per acre than we would otherwise be able to do."

He referred to the tendency in the past to go to the city, but thought within a few years it had received a check. He gave three reasons inducing men to go from country to towns: First, a love of excitement, the noise and bustle of the streets, the buzz of machinery, and general activity; second, the labor in the towns is so organized and gauged that it is comparatively simple and easy, while on the farm the worker must know how to manage horses, care for machines, and exercise his judgment of soils and their cultivation, being left often to his own resources; third, the apparently higher wages in town. He regarded the higher wage more apparent than real, considering the inducements to spend and the higher cost of nearly all items of expenditure, and believed it "decidedly true that the farm laborer has a better opportunity to become a better citizen and a man of influence in the country than in the city."

The editor of the *Farmer's Call*, Mr. John M. Stahl, secretary of the Farmers' National Congress, of Quincy, Ill., a gentleman of wide experience and large observation, who says he has been both a farm laborer and city laborer, and an employer of both farm and city labor, gives the following testimony:

"Undoubtedly the farm laborer's financial and social condition is superior to that of the city laborer. It is much easier for the farm laborer to save money than it is for the city laborer to do so. This is proved by the fact that the large majority of farm laborers become home owners, while only a minority of the city laborers become home owners. The farm laborer, unless below the average in intelligence and morality, is admitted to very nearly or quite the same social opportunities that his employer's family enjoy, and good farm society is intelligent and not inferior to good city society in all that is of real worth. The city laborer has not such social opportunities. His social condition and the factory system, lessening individuality, have made the influence of the average city workman very little and his opportunities for usefulness very limited. On the contrary, the average farm laborer is a distinct personality and influence in his neighborhood, his opinions and his doings are taken account of, and doors of usefulness stand open to him."

Mr. B. W. Snow, of Chicago, agricultural statistician, formerly assistant statistician of the United States Department of Agriculture, makes the following statement concerning farm labor in Illinois and the Northwest:

"In many respects farm labor has an advantage over other workers of a corresponding class in other industries. In farm labor there is none of the bitter, grinding poverty and struggle for bare subsistence upon the lowest possible plane that is found among ordinary unskilled labor in the great cities. During the hard times between 1893 and 1897, while employment at any wage was difficult to secure in cities, there was no marked change in either the number of farm hands employed or in the wages paid them.

"The problem of help at critical periods in crop history like harvest time, when, for a few days or at the most for a few weeks, there must be a large increase in the labor force, is largely solved in the Northwest by the employment by the day of men who drift out of the cities and gradually move northward as the harvest season advances. These men are not strictly farm laborers, but are simply unskilled men seeking for temporary engagements. Their condition must not be taken as typical at all of the condition of regular farm labor. To some extent at least they are simply hoboes, who can earn enough in a few weeks to keep them during a large part of the year following.

"Of good, intelligent farm help there is never a surplus anywhere in the West and at no time would such a man have to look for employment. About the only change in the status of such labor during recent years is the increasing necessity for the medium class of laborers remaining as laborers for wages during their life. A few years ago when land was cheap men would work a few years as laborers and accumulate enough money to secure a farm for themselves. With the increase in land values this becomes difficult, and there is an increasing percentage of men who will spend their lives as wage-earners."

Mr. Oliver Wilson, master of the State Grange of Illinois Patrons of Husbandry, writing from Magnolia, thinks that efficiency of farm labor is not increasing, as the dependence in that part of the State is largely upon foreigners, many of whom are inefficient in the use of farm machinery and do not learn readily; that help is scarce there, though more abundant in the southern part of the State. He says that wages did not depreciate in his locality during the very low prices of farm products, and that they are higher than ten years ago.

Mr. Kilburn Harwood, statistical agent of the Department of Agriculture for Illinois, considers Illinois labor fairly abundant and efficient, except in certain seasons, as in corn husking, broom-corn cutting, etc., when there is a pressure of work that can not well wait. He says that few farm hands come from other States, but many are inclined to move northward from the southern counties for higher wages; that they are thrifty and ambitious of home making; become tenant farmers and ultimately owners of land. He says that wages were considerably reduced in the panic years, but are now higher; that farmers are in better condition and have more ready money since 1896. He thinks the remuneration for farm labor is rather better than that of other labor of no greater skill.

Mr. H. B. Gurler, of DeKalb, Ill., a farmer of experience and intelligence, expresses the belief that farm laborers are as prosperous as any class of workers in that section, and indeed that they are saving more money than any other class of equal intelligence. He says that they are ambitious of home making and that there are many instances of success among them. He thinks agricultural labor, considering the cheapness of living and other advantages, is more remunerative than unskilled labor in town.

WISCONSIN.—Prof. W. A. Henry, director of the agricultural experiment station of the University of Wisconsin, in making a statement concerning farm labor, based upon his broad experience and careful observation of rural affairs in that State, wishes it to be regarded as a rough approximation to the facts bearing on an intricate subject. On certain statistical points, a full and accurate census would be desirable, but Professor Henry's conclusion generally will be relied on as warranted by a highly practical judgment, as well as a scientific basis. He says that labor was not abundant in the panic period, nor were wages materially reduced, but are now quite as high as in 1892. He says:

"Our farm laborers in Wisconsin are Germans, Norwegians, Swedes, Danes, Bohemians, Poles, Americans, Irish, etc. The north European people, notably the Germans, Swedes, and Danes, make our best farm help. The wages paid are from \$18 to \$22 per month, with board and washing included for 8 or 9 months in the year. During winter from \$10 to \$15 per month is paid for help. As ours is a dairy State, very often help is hired by the year at about \$200 per year. On some dairy farms labor is employed as follows: The family is allowed a house, a garden, firewood, and some other perquisites, such as a cow and pig. The man receives \$180 or \$200 for his full time. His wife, son, and daughter are paid a few cents per week for each cow they milk. In this way the cash income of the family is increased

\$50 or \$75 per year. This class of farmers often save up considerable money and become farm owners themselves.

"Compared with the same class of labor, as near as one can do so, I think our farm help is as well paid, or nearly so, as the same grade of labor in the villages and cities; and surely this is true when the possibilities for laying aside money are considered. It is very difficult, however, to keep labor in the country, for the reason that single men especially, miss the social feature, and men with families are often driven to town by the wives and daughters, who can not stand country life. Our farmers feel that the wages they pay their help is excessive, considering the returns received from the sale of their agricultural products. But in spite of this theory both sides manage to do fairly well, and our agricultural people are becoming more and more prosperous. A great many of our farmers now have money to loan, and the mortgages on most farms are for purchase money or needed improvements. Dairying has made us a thrifty, prosperous people for the most part."

The secretary of the State board of agriculture, Mr. John M. True, of Madison, writes that for the past season there has been a sufficiency of labor for the ordinary operations of the farm but a manifest shortage of day labor. He thinks nine-tenths of the farm labor employed is native and resident, drawn from the neighboring country, and says it is very reliable and satisfactory generally. It is composed largely of sons of farmers who are spared from home labor for personal money earning. He thinks the wages paid are even better than are paid for other labor, when the cost of board and other items of living expenses are duly considered, and adds: "With the use of improved farm machinery, and a recognition of proper working hours upon the farm, work is losing much of its former unpleasantness."

The president of the Wisconsin board of agriculture, Mr. George McKerrow, expresses the opinion that farm laborers save as much, if not more, than those in other industries.

Mr. E. A. Scherbel, State agent of the Department of Agriculture, writing from Middleton, Wis., reports a positive scarcity of laborers in his section, and says there is no need that a single man should be unemployed, though with the great abundance and marked effectiveness of agricultural implements, and reliance on the labor resources of his own family, the farmer manages successfully to relieve the situation to a great extent. He says the wages paid are about \$25 per month and board, which compares favorably with the pay of others of equal skill and intelligence. "He commands his own prices, and is so independent that the farmer has to treat him gingerly, otherwise he would simply tell the farmer to do the work himself."

MINNESOTA.—The secretary of state of Minnesota, Mr. Albert Berg, writes that the farm laborers of Minnesota are mainly immigrants from Europe, and additional labor employed is mostly resident, though of farmer origin, and the wages \$18 to \$22 per month, for 7 to 9 months, with board.

NORTH DAKOTA.—Hon. H. U. Thomas, commissioner of agriculture of North Dakota, states that a large proportion of the harvest laborers come from other States, and stay about 3 months, from August to November; most of them come from Eastern cities, induced by the high wages offered, from \$1.50 to \$5 per day according to work performed.

NEBRASKA.—Prof. L. Lyon, of the University of Nebraska, writes:

"There is a very marked scarcity of farm laborers all through this region. During the past summer some of the large beet raisers found it utterly impossible to secure the necessary number of workmen to keep their fields in the proper condition. Farmers experience the same difficulty. It is difficult to say of what class or race the larger portion of our farm laborers consists. I am inclined to think, however, that American-bred men predominate. A considerable proportion, but not by any means the major portion, consists of the so-called 'hoboes' who travel around the country, doing a few days' work here and there. This, of course, is a very undesirable class of labor. Farmers as a rule in this State do all of their own work, and it is the exception rather than the rule to find any hired hands on the farm. The remuneration received by farm hands is not so large absolutely as that obtained by similar laborers in other employments, but relatively—when the cost of living is considered, and especially when the opportunity for saving money is taken into account, I think that the farm hand is probably as well off as the same class in the city."

S. J. Kent, esq., deputy commissioner of labor of Nebraska, expresses the belief that the condition of farm laborers of that State is superior to that of average laborers working at other occupations. The wages may not be so high as in the city, but the high price of provisions and of everything that the city laborer buys places him at a disadvantage compared with the average farm laborer. In many instances, he states, farmers are paying \$25 to \$27 per month for men to manage their farms, and furnishing a home to live in.

Iowa.—Prof. C. F. Curtiss, professor of agriculture in the Iowa Agricultural College, at Ames, says that wages were somewhat reduced during the years of business depression, but thinks that the wages of the more competent class have advanced 10 per cent within 4 or 5 years. An increasing number of employers are willing to pay \$5 to \$10 above current rates of wages for men really worth the difference. The services of such men are more satisfactory to the employer, and this recognition affords an encouraging stimulus to the laborer. He says of students trained for agricultural positions:

"It is only in recent years that we have been placing our students in charge of farms and as overseers of agricultural work. The results are very gratifying, and these trained and educated young men are exerting an elevating influence. Employers recognize their worth and are paying advanced wages. Many of our graduates, however, are capable of filling more advanced positions, and obtain employment as instructors and investigators in other colleges and experiment stations and in other lines of agricultural work not directly connected with farming."

Prof. J. R. Sage, director of the Iowa weather bureau at Des Moines, writes as follows:

"In this State, as elsewhere, the general tendency toward what is termed 'diversified farming' and specialties in agriculture has created a demand for a higher grade of skill and general intelligence among rural employees. Unskilled labor has been drawn to the towns and cities and to railroad construction. The farm laborer must be measurably skilled in the use of machinery, the care of live stock, and the up-to-date methods of cultivation, if he is able to command the highest wages. An increasing number of young men employed on the farms at this time are of this type, or possess the ability and desire to acquire the requisite knowledge. They aim to obtain the means and skill to become owners or managers of farms, and in this most of them are successful."

"The general introduction of improved machinery in farm operations has increased the productiveness of labor, and in some measure lessened the demand for laborers; but it has also necessitated the employment of men possessed of higher qualities of intelligence and mechanical skill, though a relatively smaller number of men are employed."

"The notable development of the dairy industry in this State has given remunerative employment to a large number of skilled workers. Improved stock breeding has also created a demand for a class of helpers who have had special training in that line. In feeding and handling farm stock for the market there is a demand for men who rank considerably above the unskilled laborers of the cities."

"As a result of this general demand for a higher grade of intelligence and skill, there has been a marked increase in the wages of the better class of hired men on the farms. The average compensation is considerably higher than ten years ago. During the years of depression of other industries there was undoubtedly an increase in the number of farm hands seeking employment, and a corresponding decrease in the average compensation."

"At this time the farm laborers receive higher compensation, considering lower cost of living, than unskilled labor in towns and cities. The majority of farm laborers save money year by year, and in time become owners or renters and farm managers. A very large percentage of the most prosperous farmers began active life as farm laborers."

Mr. Harlow Bagley, farmer and stock raiser, at Melbourne, Iowa, says that competent men are scarce and hard to get in his vicinity; that they are asking \$20 to \$28 per month and board, or \$250 to \$300 when employed by the year; that they are no more skillful than formerly, and he thinks they "are a good deal better paid than men of the same capacity in town."

MISSOURI.—Mr. R. Rippey, secretary of the State board of agriculture of Missouri, says there has been no material improvement in the demand and wages of farm labor in recent years, though in some branches of farm industries there may be a little more activity at the present time. He reports the result of a recent investigation, just completed, which makes the average wages per month with board \$14.20, without board \$20.03; an increase since 1895 of only 25 cents per month with board and 48 cents per month without board. There is found a difference of fully 20 per cent in the extremes of the State, or between the southwest and northwest, the latter section, bordering on Iowa and Nebraska, showing rates that correspond closely with those of the States named. The next highest rate is the northeast, bordering on Iowa and the Mississippi River. Mr. Rippey reports that a small number have employment through the year, or most of the time, and some reporters said "good men get work all the time." The larger number are engaged 6 to 10 months, averaging about 8 months, the northwest and southwest sections averaging longest, or about 9 months. He finds some decrease of unemployed labor, as compared with 1895, but no very decided change. The hours of daily service average about 11.

As to the saving of money by farm laborers he reports as follows:

"Young men without families, or married men whose wives and families make some contribution to their support, and who by the excellence of the service rendered can find continuous employment may, by practicing economy, save a few dollars each year. But even this estimate of savings makes no allowance for detention from labor by sickness, for physicians' bills, or other unforeseen misfortunes. While it may be observed, from the estimated profits on farm lands herein reported, that farmers are generally paying the highest possible wages under the present circumstances, the condition of the farm laborer is not satisfactory. While he can secure employment for only 8 months in the year, his hours of service are longer than those employed in any other industry, and the wages paid are less. In many instances he and his family, by reason of these unfavorable conditions, are denied many of the necessities of life and to them luxuries are unknown. It is not unusual to find families so pinched by poverty that they are forced to deny themselves the benefits of our excellent free school system, finding it impossible to procure the necessary books and to furnish decent and comfortable clothing. These conditions should be improved. Higher wages would solve the problem, but at present prices of farm products would cripple or bankrupt the farmer. It seems probable that relief to the farm laborer must await a more extended market and better prices for farm products, a time when prices are governed by supply and demand, and a time when farm supplies may be purchased at a reasonable price above actual cost rather than at the exorbitant rates fixed by combines and trusts."

The difference in tone between this statement and many others quoted in this chapter is very noticeable. It will be seen that in those cases other industries are very numerous and active, competition giving better wages, and, what is still more important, furnishing employment for the winter season, or time unemployed on the farm. This makes all the difference between a bare subsistence and possibly prosperity in spite of "combines and trusts." Mr. Rippey hints at the benefit of influences from the outside acting on agriculture, in saying that "public improvements, prospecting for or the development of minerals, or any considerable immigration to any locality, and the improvement that would follow in consequence, would doubtless advance wages at that point, and proportionately in the State."

OKLAHOMA.—Prof. John Fields, director of the Oklahoma Experiment Station, at Stillwater, writes as follows;

"Oklahoma farm labor until quite recently has been almost entirely done by the occupants of the farms, their wives and children. There has been practically no 'laboring class,' as nearly all were improving the opportunity to secure homesteads. This condition has modified the character of the agriculture to some extent, and has tended to a greater diversification of crops than would otherwise have been the case. Crops that came in succession and could be managed by the family were given the preference. This refers to the largest part of the rural population of the Territory. In the sections where wheat is grown harvest hands come down from the North and work northward as harvest progressess, so that there is usually no dearth of laborers. In the cattle sections the cowboy, modified and mellowed by the barbed-wire fence and the necessary change in methods, performs the work of the ranges. As a rule he is a permanent fixture on the ranch, cool, efficient, and faithful. His visits to town are not so lurid as of yore, though not entirely without interest. In general the supply of labor is equal to the demand. There being no large organized interests, strikes are unknown."

5. THE MOUNTAIN STATES.

The farm laborers of the States of the great mountain area, the Rocky Mountain range, and the great Central Valley of Utah, and the southern slopes of the Sierras, are as yet not a large class. The settlers were first stock growers; later, irrigation brought in alfalfa in connection with lamb feeding, the culture of potatoes as a specialty for eastern and southern shipment, of fruit growing in the western Colorado slope and the Utah Valley, and of vegetables for the mining sections. All these operations were undertaken by enterprising immigrants from the settled States, who were able and willing to do most of the work required. Other immigrants, without means for immediate home making or investments in stock or lands, were willing to offer their services temporarily as helpers. The cowboys, eager for adventure, were the laborers of the ranches; as lands became restricted and fences general, many of them have taken up ranches and become permanent residents. It is claimed that the laborers of this section are of high efficiency, full of energy and ambition, demanding and obtaining high wages, and as a rule thrifty and prosperous.

COLORADO.—Prof. W. W. Cooke, of the Colorado Agricultural College, writes:

"We have here conditions of farming and farm labor somewhat different from those of the States farther east. The most noticeable difference is lack of the foreign element in those that own the land. There are very few persons born outside the United States that own and operate farms in Colorado. It consequently follows that the standard of education among the farming classes is correspondingly high. The result of this is the owning and use, to a large extent, of the latest and best machinery. But this latter fact has two results with regard to labor. It necessitates fewer laborers for the amount of crop raised, and it requires that that labor be more skillful than the ordinary run of labor in the Mississippi Valley. Added to this the fact of all crops being raised by irrigation, which is in itself a separate part of farming to be learned by considerable experience, and you will see that we have here little use for the unskilled laborer. Farming in Colorado is on the extensive rather than the intensive order, and the number of hired men is comparatively small.

"Their pay is probably a little higher than is paid for similar labor East. The cost of living here in the irrigated portions of the State east of the mountains is just about the same as in the East. Wages for all labor outside of farm labor is higher than in the East, and when it comes to wages for mining and all the operations attending mining it is absurdly high, higher than the men themselves would claim that they earned, but the plea is that there is so much profit from the mines that they ought to have a share. The same grade of intelligence that gets \$25 and board on the farm gets \$3 per day in the mines and smelters.

"Indians and Chinamen are not employed at all in farm work in Colorado, nor is any foreign element as such employed.

"Wanting so few farm laborers, there is no special difficulty in getting what is needed; but there is no surplus of labor seeking employment. Whenever any new enterprise starts that will demand many new laborers it is a little difficult at first to find the men."

UTAH.—Mr. William Nelson, managing editor of the Tribune, Salt Lake City, Utah, states that farm labor is reasonably abundant, and would be redundant but for the colonizing movements in progress to Nevada, Idaho, Wyoming, and Colorado, and also to Alberta, Canada. Formerly there was an active movement to Arizona. This relieves the congestion of population resulting from the large proportion engaged in agriculture. He thinks labor quite as efficient as formerly and wages a little higher. They were reduced during the years of depression, but the most noticeable effect of the depression was the almost total lack of employment for a considerable proportion of those seeking places. The laborers are natives, and mostly resident. He states that the farmers keep more stock and cattle, and that they are generally "sprucing up" their farms, making improvements, betterments of the house and household appurtenances, and increase of agricultural machinery, evidenced by the recent completion of two large implement warehouses and sales rooms.

WYOMING.—Dr. D. B. Buffum, director of the experiment station of the College of Wyoming, writes as follows:

"Farming in our State is yet very new. We are still in the transition period, between the great nomadic range stock industry and the more settled condition of irrigation farming. It can not be said that there is as yet any fixed status of labor. Ranch hands are in considerable demand during the time of putting up hay (in July, August, and September), and a man receives from \$25 to \$40 and found. Taking the State as a whole, the larger part of the labor on our farms and ranches is probably done by young Americans whose employment as cowboys is no longer certain or in great demand. In farming districts, farm hands command from \$20 to \$35 a month and board, and, although not paid so well, their condition is much better than that of foreigners and others who work in the coal mines. The cowboy is a happy-go-lucky, independent sort of individual, who is able to save considerable money if inclined. Many of them have taken up ranches and are building up permanent homes. During the last year or so the demand for laborers has been greater than the supply, and wages have accordingly advanced. Outside of Americans, the nationality most in evidence is Scandinavian, whose unskilled labor is really of a very poor type, even on a farm."

MONTANA.—Hon. J. H. Calderhead, commissioner of agriculture of the State of Montana, claims that the farm labor in this State will compare with similar labor in the middle-west States more than favorably, and that it is better paid and the hours of labor are not as long—in both regards conforming to other manual labor in Montana. He says:

"As the agricultural interests of the State are in the midst of rapid development, the number of farm hands is rapidly increasing, while, at the same time, there has been no diminution of the wages paid, nor any increase of labor exactions."

IDAHO.—Prof. H. T. French, agriculturist of the University of Idaho, writes:

"Regarding farm labor in this State permit me to say, that so far as my observation extends I believe the average intelligence and efficiency of such labor is above the ordinary in the West. It is certainly above the standard on the Pacific coast, for I had much to do with such labor west of the Cascade Mountains during a residence of 10 years in the Willamette Valley.

"A large per cent of our farmers comes from the middle-western States, and the young men coming from these States have had more or less advantages in education and training in their calling. The population of Idaho is made up largely of young and middle-aged men and women, who have left the old homes in the East, and have come West to engage in stock raising, or in fruit raising, perhaps, as the conditions of climate and soil will permit.

"As to abundance of labor for the farm, I think there is not as much labor in sight as the demand would warrant. The mining interests call a great many laborers away from the farms. The wages paid in the mines are much higher than farm labor can demand. Last season it was not easy to get sufficient help to take care of the grain crop in this part of the State. In the southern portion of the State only those of considerable intelligence can succeed, for the irrigation problems come in there, and to understand and operate an irrigation system calls for the highest degree of intelligence and training."

Mr. J. A. Beal, statistical agent of the Department of Agriculture for Idaho, writes as follows:

"Farm labor in Idaho is mostly, if not wholly, native and resident, with the few exceptions, pertinent to every locality, of an occasional wanderer who drops in for a few months' work and a consequent 'stake' to enable him to reach some supposed or positive objective point. Labor is very generally intelligent and efficient; our farmers, as a rule, employ very little all the year around labor, managing and cultivating their own farms, assisted, in the majority of instances, by one or more grown-up sons or other members of the family. During haying or harvesting it is necessary to employ extra help, but this is mostly hired from the immediate neighborhood. Except in the Palouse and Potlatch wheat belts of the northern part of the State, farms rarely exceed in area above 160 acres, and the majority will probably not average above 80 to 100 acres. The large wheat farmers of the north necessarily employ considerable all the year around labor, and this is, in a measure, migratory, and to some extent foreign, but not alarmingly so. Wages are not quite so high as 10 years ago, but on a more stable basis. Sheep and cattle are great industries in our State, necessitating the customary cowboy and sheep herder—the former invariably native, the latter Italians predominating. Stock raisers on a large scale have extensive ranches, necessitating considerable all the year around labor. Wages for this character of labor have increased very perceptibly in the past two years, but are, perhaps, not much if any in excess of those current ten years ago. Our farm and ranch laborers are a very contented lot, and with hardly an exception during the busy seasons there is a scarcity rather than an over supply."

ARIZONA.—On the authority of Prof. A. J. McClatchie, the agriculturist of the experiment station of the University of Arizona, it may be stated that the supply of farm labor in that Territory is fairly abundant in all the agricultural regions. It is made up of three classes mainly, whites, Mexicans and Indians. The white farm laborers are mostly from Georgia, Missouri, California, Texas, and other Southern States and are as a whole an industrious and efficient class of men. The Mexican laborers are fairly good men at routine work, especially in irrigating. They make little provision for the future, depending upon day wages for their support. Men with families must receive their pay every Saturday evening. The Indians are found to be servicable for some kinds of farm work, but as a whole are not very efficient.

NEW MEXICO.—Prof. Frederic W. Sanders, director of the agricultural experiment station at Mesilla Park, N. Mex., states that the unskilled labor there is mostly Mexican of mixed Spanish and Indian blood, and the skilled labor white, American and foreign, the latter being largely German, French, Swiss, Italian, with some English and Scotch. There are very few negroes and fewer Chinese. He reports day wages in agriculture as ordinarily 75 cents per day.

The secretary of the bureau of immigration of New Mexico, Mr. Max. Frost, furnishes the following statement:

"Agricultural labor in New Mexico is abundant and efficient. On ranches and stock farms and in the business of cattle and sheep growing there is always a demand for labor and the supply is usually equal to the demand. Agricultural labor is being paid better these days than it ever was before in New Mexico. When wool was low and sheep were decreasing wages were cut down, but under protection to wool wages have again taken a rise. Agricultural labor, except on the cattle ranches, is nearly all native. On the cattle ranches there are a good many Texas cowboys."

6. THE PACIFIC COAST.

Labor conditions on the Pacific coast are undergoing changes probably more marked than at any former period. Wheat growing, once the almost sole form of tillage, is now one of many. Stock growing, to which nearly all open areas were formerly tributary, has been circumscribed and limited and threatened with crowding out of existence. Irrigation has made fruit growing steadily productive and profitable, and intensive agriculture possible and actual. The new beet culture for sugar making was first to score a success here, and has found in California one of its most favorable locations. Hop growing, especially in Oregon and Washington, has attained such prominence as to overshadow the East in production, and dominate the hop-growing industry in the United States. The coast has enjoyed a climatic advantage that has suggested monopoly in certain lines of production, and has seized the opportunity to follow up its natural advantages with promptness and enterprise. It has thus produced more value per capita than the rural workers in any other section of the United States have been able to obtain, this opulence of production benefiting all its agricultural laborers as well as farm workers.

One of the changes most apparent is the gradual disappearance of Asiatic labor. The Chinese element is already relegated to a minor position, owing mainly to the exclusion act. Japanese laborers have in a limited degree taken the place of Chinese, but their increase is not feared. The beet-sugar farmers have brought in Italians and other immigrants from the south of Europe to cultivate their extensive holdings to avoid too great dependence on outside beet growers. The harvest hands are mainly transients, not all of the most desirable character as laborers. These are the less skillful, less reliable, less valuable elements of the labor of the coast. There are classes of much higher efficiency and greater skill, more valuable for labor and citizenship, in many lines of fruit growing, dairying, and general farming, which promise future improvement in the rural labor of the coast, and such labor is appreciated and in increasing demand.

WASHINGTON.—Prof. William J. Spillman, agriculturist of the Washington Experiment Station, gives the labor peculiarities of three distinct agricultural sections of the State as follows:

"There are three very distinct agricultural sections of the State. The first lies west of the Cascade Mountains, and is characterized by a rainfall of 40 to 60 inches a year. The country is for the most part heavily timbered, and only 20 per cent of the 2,000,000 acres of valuable agricultural land is cleared and in cultivation. The principal lines of farming are fruit raising, vegetable gardening, dairying, and hop culture. The last named calls for an army of laborers for a few weeks of the year only. The wages are very high for these few weeks, because hops must be picked in season, and yard owners must pay what laborers demand. The floating population of the country congregates in the hop yards at the picking season, and the conditions that prevail are sometimes not conducive to good citizenship. During the remainder of the year this floating population goes mostly to the cities, where they live largely at cheap restaurants and free soup kitchens.

"Fruit raising, while not giving steady employment to all the laborers demanded at picking time, does so more nearly than hop culture. Gardening is still better in this respect. On dairy farms laborers are employed by the year as much as possible, there being about the same amount of work to do at all seasons of the year. On a well-managed dairy farm wages are \$250 to \$350 a year, with board and lodging in addition, and good laborers are very hard to secure even at these wages. Considering the relative temptations to spend money frivolously in city and country, I consider this equivalent to a salary of \$700 to \$1,000 a year in cities, where the laborer must support himself.

"The next section consists of arid lands in central Washington, where irrigation is practiced. Alfalfa is almost the only field crop, but much of the land is devoted to fruit and vegetables. Wages are about as in western Washington, and good laborers hard to get.

"The third section consists of rolling prairie in eastern Washington, where the crop is almost exclusively wheat. This crop, like hops, calls for great numbers of laborers for a short term during harvest, which extends from July 10 to the 1st of October. The rest of the year there is nothing for these laborers to do and they drift to the cities or go 'tramping.' Wages during harvest range from \$1.50 to \$3.50 per day, according to the season and the kind of labor. Lodging and board are also furnished. The few laborers that are employed the year through get \$250 to \$350 a year and keep. Satisfactory labor is very difficult to secure.

"What we need is more diversification of our farming, so that the same amount of labor shall be needed at all seasons. We shall then be able to attract men who have had some training for farm work and who will be content to work for wages that will leave some profit to the farmer."

OREGON.—Prof. James Withycombe, vice-director of the experiment station of the Oregon Agricultural College, at Corvallis, writes:

"There is no special scarcity of farm laborers in this State. The prevailing system of farming is grain growing, hence the demand for labor is at stated seasons, namely, seeding time and harvest. But a small per cent of our farmers employ labor permanently on the farm. The laborers leave the farm in the fall and usually find employment in lumbering.

"In some agricultural communities the farmers rely on the settlers in isolated or mountainous districts to supply the needed help. These settlers have but small areas of improved land, hence their income is small and the money earned as above is quite helpful to them.

"There is also a transient or nomadic class of laborers which can usually be obtained during the summer months. These laborers usually come from California after harvest operations there have ceased, and when it is completed here they move to eastern Washington, Idaho, and the Dakotas, returning again to California.

"Considerable labor is employed by the farmers during the hop-picking season. This class of laborers consists largely of women and children, which is supplied by the towns, villages, and by the needy settlers in isolated or mountainous districts."

Mr. A. V. R. Snyder, of McMinnville, Oreg., statistical agent of the Department of Agriculture, reports that the quality of labor is fluctuating, as little is needed in winter months and the demand is small; that it is superior in efficiency, being mainly resident and American, and that the foreign element has never been large. The Chinese there at one time have left, and under the exclusion act have not returned. He says wages were higher in 1899 than at any time since the business depression, at which time able-bodied men were glad to get 50 cents per day, and many were working for their board. He says: "Oregon has but few idle men, and general happiness prevails among all classes of people."

CALIFORNIA.—Prof. E. J. Wickson, of the college of agriculture in the University of California, makes a statement of the status of rural labor in California, indicating marked changes occurring in its personnel and methods. He thinks there will be less and less dependence upon Asiatic labor, and that available supplies of white labor will continually increase. He says:

"What will be the complexion of this white labor is something of a question, because at the present time we are securing quite large accessions of settlers from the south of Europe, and some apprehend that this will work hardship for our native-born population. It is a fact, however, that these newcomers rapidly take on American ways, and are quite desirous of securing for their children the same educational advantages which the children of the native born secure. It seems to me that there will be an abundant supply of this class of labor to fill the demand for unskilled help, and also to undertake some higher work. Our beet-sugar factories seem to be embracing the policy of introducing European white labor, and they have all secured lands, so that they need not be dependent upon local farmers for their beet supply.

"There has been unquestionably a disposition to shorten the hours of labor in nearly all industrial lines in this State, and the same tendency is true, though perhaps in a less degree, in farm work. This does not apply to harvesting operations, nor to work in handling fruit, where long hours still prevail, and where much of the work is done by the piece."

Professor Wickson printed our inquiries in the Rural Press, inviting the views of California agriculturists. After much investigation and mature consideration he makes the following statement:

"The proportion of white labor now employed in California agriculture is greater than ever before in the history of the State. The available supply of Chinese has been greatly reduced by the exclusion acts, and the numbers now employed in field labor is so small as to be inconspicuous. Meantime the numbers of Japanese have increased, and in some localities they have become a main reliance in some kinds of work, but their distribution has never attained anything like the breadth which the Chinese at one time commanded. At present, Asiatic help of both kinds serves a very good purpose for temporary uses, but is too restricted in volume to menace the white population or to maintain the antagonisms which once existed.

"The experience of the last decade has fully demonstrated the superior efficiency of white labor in agriculture, and the profitability of such labor at a higher compensation is also conceded by most employers. It is also true that the present supply of white labor is of much higher grade than formerly. California has for the last few years been rapidly assuming the characters of a settled community. The shifting population is decreasing. In nearly all regions there is a certain resident labor supply composed, in part, of thrifty emigrants who are working earnestly to establish themselves in the State, and, in part, those who have passed from youth to maturity

in our midst. The superiority of such labor supply needs neither argument nor illustration, but conspicuous instances of it are found in all fruit-growing regions. The millions of value brought to the State by the citrus orchards, the raisin vineyards, the deciduous fruit orchards, and the vast canning and drying industries are now secured very largely by white labor, which has supplanted the Asiatic and has shown itself to be almost incomparably superior. In a less degree, also, white labor has replaced Asiatic in many field crops, though in others the Asiatic seems at present almost an indispensable element because other supply is not available, nor content with the low wage rate which crops grown on a narrow margin of profit can afford to pay. Unquestionably our white labor is advancing in motive, in spirit, and in efficiency, and each year onward there will be less opportunity for competition by other races.

"The course of wages has been influenced by local conditions in a very striking way during the last decade. The general depression and inactivity of the earlier half accomplished quite a marked reduction in ruling rates, and this was continued and emphasized by the drought of 1898. Laborers, as a rule, cheerfully accepted lower compensation, because the occasion was so obvious. The situation would have been worse had it not been for local conditions which drew men into other fields of activity. The activity in mining interests at various points on the coast attracted hundreds who could muster means to reach new fields. The opportunity to enter the Army for service in the Philippines relieved others from distress. The activity of the metropolis in handling supplies for war and for distant mining regions was also a relief measure for the unemployed labor supply of the farming districts. This movement, in a way, checked the decline in wages, and those whose services were indispensable undoubtedly profited by it. The result of all these tendencies was that in 1899 there was a scarcity of labor in those agricultural districts that had crops to handle, and a considerable advance in compensation was secured for the limited period during which the help was required. Meantime the revival of confidence was so marked during the last year, and the quick and profitable markets which some of our products found, awakened new activity in our cities and larger towns, and the beginning of improvements of all kinds which had been some time deferred, created a new demand for labor and ushered in the present situation, which seems to afford profitable employment to all who earnestly desire it.

"As to the term during which farm laborers are employed, it is unquestionably lengthening. Though still the extra demands at harvesting all sorts of crops exist, and in the nature of things always will exist, probably there is a better opportunity than ever for long terms of employment. The increase of the dairy interest in regions formerly almost wholly given to grain has of itself opened the way for steady employment which formerly did not exist. The development of fruit areas has had a similar tendency. The disposition to provide better quarters for laborers on agricultural properties is very marked, and so far as we have heard and seen, such investments on the part of employers have been found profitable in the greater loyalty and efficiency of the laborers secured. As to the proportion of the labor supply employed throughout the year or for a short period we have no data, but if the figures were restricted to what is commonly termed farm labor, the proportion retained for the year would now be represented by a respectable fraction—much greater, in fact, than ever before. If the figures should include as farm labor the thousands who go from towns for orchard, fruit drying, and canning work during its season, the fraction would be very small. But it is one of the most pleasant facts of recent years that our great fruit products can be so largely handled by white labor from towns as it now is. Twenty years ago it was thought impracticable, and growers were in much anxiety as to whence their fruit-harvest help should come. To-day there is no concern whatever about it, for, though there is now and then a little pinch, the demand as a whole seems to be provided for.

"As to relative condition and prosperity of the farm and town laborer we have no fresh data. So far as we know, the old facts and the old arguments are as true as ever. The farm laborer has possibly a little less net income from a year's work than his town brother of equal grade of labor and equal sobriety and thrift, but his opportunities are immeasurably greater for using any surplus he may accumulate in establishing himself upon property of his own, or in becoming his own master upon leased land. There is now a better chance than ever for this because land is nearer its actual value in California than it has been for a number of years at least. In all parts of the State people who come with small capital and large energy and self-denial are placing themselves well by supplementing their means with the proceeds of labor done for others. They are helped to do this by the increased opportunities which our broader agriculture of the present day affords and by the fact that Californians now appreciate white labor better than formerly, because they are having experience

with a better kind than in the old days. We believe that the agricultural laborer is well paid in California, and appreciated if he is endowed with self-respect and the qualities which self-respect insure."

The secretary of the State agricultural society at Sacramento, Mr. Peter J. Shields, writes of the personnel of California labor, as follows:

"During recent years of the extreme agricultural and industrial depression, up to about 1897, the farm laborers were probably in excessive supply, and wages fell from \$25 to \$30 per month to \$15 to \$20. With the reviving of business and the improvement in prices since that date there has been a shortage of labor in California, and good wages are paid. This shortage was brought about in various ways; the depression here drove men into mining and other business, and probably caused many to remove from the State. With the discovery of gold in Alaska there was a very large migration. Many of our floating population in recent years have gone to Mexico and Hawaii, and it is probable that during the war many chose to remain in Cuba and the Philippines.

"At the present time there is an undersupply of industrial laborers in California. Our conditions here are somewhat peculiar—during the years from 1860 upward, when California was making rapid progress, developing her resources in an astonishing manner, we imported a large number of Chinese and Japanese laborers from Asia.

"With the adoption of the Chinese Exclusion Act and the strong sentiment against Chinese labor about 10 years ago, great numbers were driven out of the State, and another supply was prevented from coming in. This left a short or insufficient supply for domestic service, farm and vineyard work, vegetable growing, and other industries. Since the departure of the Chinese large numbers of the Japanese have come in, and have to some extent filled their places, but the field has been open for white labor, and we have been getting from other States a good supply of a very desirable class. Our laboring population belongs to many races and many colors. We have a good supply of Scandinavian, German, and Irish laborers, but a majority of our farm laborers, I believe, are Americans from the Eastern and middle-Western States.

"The agricultural conditions are such in California as to demand rather special qualifications. Our orchard, vineyard, and hop ranches require some experience and training, much of the work requiring a superior intelligence. We are very largely engaged in the growing of sugar beets, and the culture, fertilization, and production of this crop requires a training which the average farm laborer has not had. There is a strong sentiment here in favor of white labor, and it is a good field for industrious and intelligent young men who could acquire the experience necessary to grow up in some of the highly specialized agricultural enterprises."

Mr. George Husmann, State agent of the Department of Agriculture for California, residing at Napa, reports that the condition of labor there has much improved in the last few years; that ready employment awaits everyone who is willing to work; that Chinese labor is being gradually supplemented by white—by Italians, Frenchmen, and Germans largely, and that this would be still more the case but that the mild climate favors "tramping," and good quarters for laborers are not always furnished, compelling the men to carry their own blankets. After a few weeks or months of work they go to the lodging houses and often spend their hard-earned wages in drink in a few days or weeks. He says a change for the better is gradually appearing, and the division of large estates into small farms is an important factor in the change, favoring home making and diversified farming, the locating of thrifty and frugal families, with capital enough to pay for their homesteads, who can do most of the work themselves, with perhaps the work of 1 or 2 good men to whom they could give employment throughout the year."

7. INFLUENCE OF FARM MACHINERY ON LABOR.

Farm implements and machinery are more various and effective in this country than in any other in the world. They are lighter, of greater strength in proportion to weight, remarkable for ingenious adaptation to specific uses and for labor-saving appliances. These qualities secure premiums in contests with English and German machines, and heavy exportation to all the civilized countries of the globe. They have cheapened the cost of production and made possible liberal supplies of food products for home consumption, and a surplus that can be sold in competition with other producing countries. While excessive cheapness is to be deprecated, very high prices will prevent exportation, restrict consumption, and enforce a limited production. The cost of growing farm products has been reduced progressively in each of the past five decades by the use of farm machinery, and prices have decreased throughout the world because the cost of production and transportation has declined.

The use of improved implements and machines has been most extensive and

effective in grain growing and haymaking, enabling growers to compete in the markets with a profit. In market gardening and other minor cultivation, the cost of labor has been much lessened by the introduction of improved implements. In cotton growing comparatively little advantage in cheapening cost has been derived from this source, as the colored laborer does not take kindly to this innovation, preferring the old-time scoter and the bull tongue to the most improved plows and cultivators. Hence the planters feel the pinch of cheap cotton all the more severely. It should be stated, however, that some enterprising planters have demonstrated the superior effectiveness and economy, in cotton growing, of modern improved implements.

How much has farm machinery cheapened cost of production? The only systematic attempt to find out, in some fair measure, was made in the Department of Labor by authority of Congress, under direction of Hon. Carroll D. Wright. The results are necessarily inconclusive, yet nevertheless suggestive and valuable. The investigation seeks a comparison of the amount and cost of hand and machine labor in production, the number of operations performed and workmen employed in each. In agriculture these comparisons cover twenty-four products, but one-fourth of that number represents more than two-thirds the value of all arable products of the country. The difference in amount of labor employed is greater than the difference in cost, as present wages and skilled labor are much higher than the old-time rates. In producing an acre of wheat in 1829-30, for instance, 64 hours 15 minutes is the record in one case, and in 1895-96, by machine methods, 2 hours 58 minutes. The wages were 50 cents per day in one case and \$1.50 to \$4.50 in the other. The difference is wide in corn, but not so extreme as in wheat. Hand labor for an acre of hay is 35 hours 30 minutes; machine, 11 hours 34 minutes. Applying the cost of hand and machine labor, respectively, to the acreage grown, the difference in the labor cost by the two methods in cereals is shown to be equivalent to nearly one-third of the total value of all our cereal crops. Of course, not all of this saving is actually made, as the highest examples of the machine method will not fairly represent the averages. The following tabulation includes hay with the principal cereal crops:

	Cost per acre.		Acres of crop.	Total labor cost.	
	Hand.	Machine.		Hand.	Machine.
Corn.....	\$3.6250	\$1.5130	82,000,000	\$297,250,000	\$124,066,000
Wheat.....	8.6338	.6392	44,000,000	159,865,200	30,324,800
Oats.....	8.7292	1.0782	26,000,000	96,959,200	27,903,200
Barley.....	8.5668	.6020	2,900,000	10,427,820	1,745,800
Rye.....	4.1061	2.6542	1,600,000	6,569,760	4,246,720
Hay.....	1.7501	.4230	41,000,000	71,754,100	17,343,000
Total.....			197,500,000	642,826,080	205,629,520

These six crops, at farm prices, are usually worth about \$1,600,000,000. On the basis of results of the hand and machine inquiry, the reduction in labor cost, the clumsy hand methods being all replaced by machine processes, would be \$437,196,560, or 68 per cent of the whole cost of labor. This shows how farmers continue to produce and live, as prices get lower.

An important question is here presented. Is this large use of machinery a disadvantage to farm laborers? It is the old question. Industrial conservatism and prejudice promptly say yes. The facts of all industrial progress say no. Mobs have destroyed the first labor-saving machines which took the place of hand processes, but the children of these machine breakers have had fuller employment and better wages, as well as cheaper clothing and other needed supplies. One of the greatest inventions of the age is the sewing machine, but never were dressmakers in greater demand than now, or their charges higher. The poor sewing woman has plenty to do, though sometimes compelled to accept starvation rates of compensation from combinations of greedy and unscrupulous employers. That is the evil for which the sewing machine invention has no responsibility.

As to the influence of machinery on farm labor, all intelligent expert observation declares it beneficial. It has relieved the laborer of much drudgery; made his work easier and his hours of service shorter; stimulated his mental faculties; given an equilibrium of effort to mind and body; and made the laborer a more efficient worker, a broader man, and a better citizen. Another vital question: Have improved implements and machinery reduced the number of farm laborers? Not necessarily. That they have dispensed with many laborers in harvest operations is very true, but they have greatly increased crop acreage, and made possible higher cultivation and

many operations for soil amelioration and farm improvement. There are more farm owners than hired farm laborers, and the proportion of both to population is smaller as variety in industry increases. Half the population in agriculture, as in 1850, is undesirable at any time; a much smaller portion is ample to provide food for all. There are portions of the country now where there are too many with no other than agricultural employments; the natural result is, there is little inducement to do more than sustain existence. At the present time, with other industries active and prosperous, there is in most places no surplus of agricultural labor, and in many a degree of scarcity.

Acute and experienced observers declare that machine development brings no detriment to agriculture. Their testimony before the commission concurs in this view. Professor Davenport, of Illinois, holds that agricultural machinery intensifies the labor put upon the land, enables farmers to use more per acre than they otherwise could. And that is the one thing needed for the advancement of American agriculture and its increase of productivity and profit. More labor in drainage, in physical amelioration of soils, in fertilization by ammonia gatherers, as well as by intelligent application of chemical fertilizers, and after all a great deal more of judicious cultivation is absolutely essential to increase of yield and profit. The old-fashioned farmer, by old methods on a depleted soil, can not produce enough to find means for employment of this necessary labor; only the up-to-date machine farmer can. Hitherto primitive methods have been prevalent. They can only help to rob the soil of its fertility, to take dividends out of capital, and leave posterity either to reform or starve. Farm machinery makes it possible to employ labor in the betterment of the land and give employment to the laborer in more thorough soil preparation and cultivation. It is therefore a boon to agriculture and to the laborer.

It is a suggestive fact that in those regions in which we find the largest use of improved implements and labor-saving appliances we find the greatest prosperity of farmers and the least discontent and dissatisfaction. And in those districts where they are sparsely used there is debt and destitution and unprogressive conditions generally. At the same time the laborer receives the lowest wages for this hard labor; is obliged to adopt a low scale of living, and exists in more or less dissatisfaction and discomfort. It is very certain that mechanical invention is of advantage to laborer as well as land owner. After all, it is the order of progress, is an inevitable condition, and he who will not use it must go to the wall.

8. INCREASE OF EFFICIENCY FROM AGRICULTURAL EDUCATION.

Agricultural education is increasing the efficiency of farm labor. Trained students take positions requiring skill and responsibility, and by teaching and example influence their helpers and immediate associates. As numbers of such workers increase their influence becomes more penetrating and permeating. Others become farmers, and each farm becomes a center for observation and ultimately for imitation. If their methods are scientific and practical, as they usually are in greater or less degree, then results are beneficial and successful. And there is nothing more influential than success. The farmers' institutes have been a very valuable means of diffusing among practical farmers the results of scientific teaching.

It has been common, in years past, to intimate that the graduates of the land-grant colleges went into other business, or the professions, and that few became farmers. There appears to be less ground for the charge than formerly, and it never may have been true, especially of Western colleges. Investigation shows that a very large proportion become farmers, or teachers in the colleges or farmers' institutes, or dairy or stock-feeding managers, or are found in other technical positions in advanced rural practice.

Pains have been taken to obtain specific statements of the employments of former students of these colleges, and the result will surprise many who have really believed that the beneficiaries of this education are turning their backs on the farms. Much more testimony of this sort could easily be obtained, but few will deem it necessary after reading the facts here presented. First is a statement of the oldest and one of the most influential of these institutions, by Dr. R. C. Kedzie, of the Michigan Agricultural College:

"Since this college opened its doors in 1857 about 4,000 students have been connected with the college, counting both graduates and undergraduates, many of the latter having been in attendance only for a few months. Of the whole number of these students fully three-quarters have returned to the farm, to the orchard, the garden, the dairy, the workshop, and other fields of labor. Ex-Governor Luce gave his estimate of the quality of our students by saying 'I never find the graduates of the agricultural college standing on the street corners waiting for something to turn up. They always find a place to work, and occupy it with zeal and energy. This is

largely because they are educated to respect labor and call it honorable.' Wilkins Micawber was never a student of the agricultural college.

"The influence of a student on the neighborhood where he settles is almost always regarded as helpful and inspiring. The unconscious teaching by better methods and scientific appliances is not wasted in the final outcome. The introduction of improved stock, better grains and fruits, methods of fighting insect foes, and modes of tillage are helps in any community, though the influence may be silent and unobtrusive. In many places agriculture has been improved, almost revolutionized, by the presence and example of 1 or 2 students.

"In social relations and associations, such as the grange, the farmers' club, and the farmers' institute, they come more prominently before the public, and their influence is more pronounced and always good.

"It is not claimed that every student has so strong a personality as to impress himself upon his community, but the instances where the educated brain and skillful hand have commanded the respect and secured the imitation of his followers are sufficiently numerous to require notice. The unconscious demand of a community that a college student shall be better and rise higher than his fellows is significant. The final outcome of these tendencies is that a community is benefited by the residence of a college student, resulting in better farming and better stock and fruits.

"Permit a few words on the influence of students of this college on agricultural education and development of American agriculture in our own and in foreign lands. It was a college student that first opened the eyes of the Japanese to American methods and machinery in farming. It was the same student who was designated by the Department of Agriculture to go as a kind of agricultural missionary to teach Australians the American methods and practice of agriculture, and who afterwards organized and equipped the agricultural college of Queensland; it was a student from New South Wales, sent by that colony to take the full course of instruction here, who has returned to his native land to fill the position of lecturer on agriculture in Hawkesbury agricultural college; and finally, it is a student under the direction of the Secretary of Agriculture who is exploring the possibilities of agriculture in Alaska.

"When we turn our eyes to the agricultural colleges and experiment stations in this country, we find that in more than one-half of our States and Territories students of this college have held positions in the faculty or experiment stations. The first agricultural college in the Union has thus laid its molding touch on a large proportion of the institutions of our country whose aim is to promote industrial science and practice."

Three thousand persons sent out to teach and practice the practical problems in scientific agriculture is a pretty large contingent of the army of progress to go from one institution. The impatience of those who demanded instant transformation through the influence of industrial education must stand rebuked by such a statement of later development.

Prof. I. P. Roberts, of the college of agriculture of Cornell University, reports that over 1,000 students have attended that institution, most of them within the last 10 years, and that more than nine-tenths of these students are now interested in agriculture as teachers, lecturers, or farmers, and that at least three-fourths of the whole number are now engaged in farming. He says:

"Scattered all over this State, and to a limited extent in other States, we find these students to be centers of activity, I might almost say a new agriculture. With but very few exceptions they have been financially successful, but we do not lay so much stress on this as we do on the fact that wherever they find lodgment one farm at least is conducted better than it ever was before, and that this farm serves as a stimulus to the farmers situated near it.

"I can say unreservedly that among the intelligent classes agriculture is intelligently and financially advancing. I regret to say on the other hand that there is quite a per cent of the farmers in our State who will have nothing to do with new methods, never attend a farmers' meeting, and see almost no agricultural literature. These farmers, we notice, are getting poorer and many of them are becoming greatly dissatisfied. Some sell out and go to town; others are sold out, and pick up a living as best they can in the city or in the country at day's wages."

Here are nearly 2,000 more agricultural missionaries from a comparatively new institution, in the heart of a great State mainly devoted to commercial, manufacturing, and transportation interests. The conservatism of ignorance is here illustrated in that portion of the rural population who still resist the influences that lead to progress in all lines so manifest in the Empire State.

From Prof. Thomas F. Hunt, dean of the college of agriculture of the State University, Columbus, Ohio, we have a summary of the occupations of the alumni and ex-students since 1892, with name and place and present position, from which it

appears that 300 of 376 have been traced, and that 137 are now farmers and gardeners and dairymen, 41 are creamery operators and cheese makers, 18 are employees of agricultural colleges and experiment stations, 14 are farm superintendents and employees, 4 are editors of agricultural and horticultural papers, 25 are young women, 15 are students in other colleges, and only 46 in all other occupations.

During the past 2 years 11 graduates have been appointed to positions they are now filling. Professor Hunt reports the average salary, so far as he has learned, as \$832 per annum, and the average time they have been out of college as 22 months.

"The positions include superintending farms, experiment-station work, and teaching. One graduate has resigned a position of \$600 per year, where he could have remained at a considerable advance in compensation, in order to engage in farming; and another, who had been receiving \$1,000 per year, refused to be considered for a \$1,200 position because he had definitely decided to engage in farming."

In the same period a much larger number of persons who have taken less than the 4-year course have had employment either in creameries, cheese factories, or on farms. He says the students of the dairy school are in dairies, creameries, or cheese factories. So there is active demand for educated service in all grades of farm operations.

Several Western colleges are having a direct and very beneficent influence on the agricultural life of that region by their short course in agriculture, in which young and ambitious farm laborers come from the farms and spend the winter in study, usually taking a place for the summer with farmers desiring just such help and returning the next winter to complete their course. Professor Henry, director of the Wisconsin Experiment Station, writes of them as follows:

"It may be of interest to you to know that each year we have with us in our agricultural college a very considerable number of young men who, starting in life with nothing, have worked on farms and intend to continue in that line until they have acquired something with which to help themselves. These young men come to us after having been hired on farms for a longer or shorter period. After studying with us in the short course the first winter we are usually able to secure a place for them on some farm, and the following winter they return to complete the course. Then we help them to another place, if needed, or they return to work with the same farmer as before. We keep in touch with them, and the brightest ones are recommended for herdsmen, dairymen in private dairies, stockmen, farm managers, etc. Last year our short-course term closed the 1st of March, and in 3 weeks from that date we had placed 101 young men on farms in all capacities, and as far as Staten Island on the East, California on the West, and Texas on the South. We have had as many as 8 letters in a single day from persons who wished our students as helpers. Young men who get from \$18 to \$22 before coming to us get from \$20 to \$25 as farm hands, and from \$25 to \$35 and \$40 as herdsmen, managers, etc. Mr. George Vanderbilt's herdsman, who has 18 men under him, is one of our former students—a city boy who was bound to be a farmer. A poor boy from Canada, who after working several years on dairy farms came to us as a student, is now the headman in charge of the cattle of Mr. C. I. Hood, at Lowell, Mass. In our class this winter is a young Polander whose parents, brothers, and sisters all live in Chicago. Eight years ago this young man made up his mind to leave the city and learn farming. For 7 years he worked as a hired man on farms in Illinois and Wisconsin and sent a large part of his earnings to his parents. He completes his work with us this winter, and will soon begin to lay up money while working as a hired man, and when he has accumulated a little will buy a piece of wild woodland in northern Wisconsin.

"I could tell you of scores and hundreds of cases like these, where young men have started with nothing and have worked their way through our school and will become landowners and substantial citizens in the future. Some of our students, of course, turn out poorly. Occasionally one is all right in his books and class, but is lazy or wishes to earn money on his reputation as a student. The majority appreciate their training and regard it as simply increasing their powers of usefulness. A number of farmers have chosen our students because they were more cleanly and respectable generally. Farmers in the West usually have their help eat at the same table as themselves, and the better class of these are more or less particular as to the cleanliness and general decency of their hired help."

At the request of Dr. Northrup, president of the University of Minnesota, Prof. William M. Liggett, director of the experiment station, communicates the following statement:

"Since the opening of the school of agriculture, in the winter of 1888-89, there have been entered upon the rolls of the school about 3,200 students in the regular course, besides those who have taken the special courses in dairying, etc. Of these 3,200 students, 265 have graduated in the school of agriculture, and 12 of these graduates

have finished the course in the college of agriculture. More than 85 per cent of the graduates have returned to the farm; about 10 per cent are in kinds of work closely allied to agriculture, and less than 5 per cent are in professions and other callings unrelated to farming. Our policy has been to concentrate efforts to practical lines of teaching and to so arrange terms of study as to enable farm boys and girls to take the course with the least possible breaking up of their relations to the farm and farm work."

Prof. C. S. Curtiss, of the Iowa College, reports the placing of their students in increasing numbers in responsible positions, especially on stock farms, where their services are more and more appreciated, and greater willingness to pay higher prices for trained and intelligent service is manifested.

Prof. Eugene Davenport, dean of the college of agriculture of the University of Illinois, in investigating this subject, finds that most of the graduates who did not become farmers, but engaged in teaching or other occupation temporarily to procure ready money, became landowners if graduates of long standing, and, if of more recent years, they intend to own land as soon as they can afford it. He adds concerning the Illinois University, of which not many years ago complaints were made that its students were not becoming farmers:

"As to our students at the University of Illinois, our agricultural students, they are all land men and will go upon the land, every one of them, excepting now and then one who is picked out for an instructor somewhere, and the call is heard for them. So you may say that the students of our university, the students of agriculture, represent that many prospective farmers; they all go upon the land."

The colleges of agriculture and experiment stations of the mountain district and of the Pacific coast are manned by some of the best material furnished by the older institutions. They are doing much good work under circumstances, soils, and climates of peculiar character, which furnish remarkable opportunities for original thinking and specialized practice.

They are making their mark upon the agriculture of that great continental domain, testing hitherto unknown plants for their use, developing new methods of culture, and giving to the markets new commercial products. They are solving irrigation problems, and paving the way for higher profit in cultivation without destroying the fertility of the soil. In California, Oklahoma, Colorado, Oregon, everywhere, this college and station work is progressive and productive, giving life and energy to a new agriculture. Especially in California a great practical work in fitting young men for intelligent, methodical, and scientific service is in progress.

The work is cumulative, greatly accelerated recently, and will make great advance in the future. It is destined to exert a powerful influence in elevating the farm labor of the United States. Much more testimony could be adduced, but in addition to the above statements it is scarcely necessary. What has been given will doubtless prove a revelation to many vitally interested in the welfare of agriculture.

CHAPTER III.

HALF A CENTURY OF FARM WAGES.

1. PRESENT CONDITIONS.

An accurate idea of current wages and prevalent conditions is obtained from careful analysis of local data, State returns, some tentative results of national official investigation, and a comparison of expert observation in every State and Territory of the United States. It has been gained through extensive correspondence with State boards and departments, and college and experiment station professors of agriculture, and the officers of agricultural societies, as well as representative farmers. Since the last publication of results of a complete official investigation, in 1892, the last of a series of nine undertaken during 26 years by the writer as statistician of the Department of Agriculture, there has been a period of agricultural depression which reduced wages moderately, but which diminished the amount of labor employed far more than the rate of wages, and this era of low prices and general discomfort and dissatisfaction has been followed by gradually increasing prosperity, a greater demand for labor, and slowly increasing rates of wages, till, as a rule, with few exceptions, there is full employment at fair wages for every farm laborer and every other laborer who is willing to work, and positive scarcity is reported in many places.

On the northern Atlantic coast, in the eastern portion of the Ohio Valley, and in the Atlantic Coast States of the South, wages are still slightly lower than in 1892. From Indiana west to the mountains, in the great mountain section, and in the southwest, wages are generally higher than in 1892, and fully as high as at any previous time, excepting only the period of inflation following the civil war, when values were measured in a depreciated currency, and therefore deceptive. Really there never has been fuller employment or better compensation of farm labor than at the present time, and the purchasing power of wages is greatly enhanced in comparison with most former dates.

The average rates of wages may be approximated quite closely, as the result of this investigation, as follows: For the labor of the States exclusive of the Southern or cotton-growing district, representing practically the labor of the Caucasian race, \$23.67 per month, or \$284 per annum. For all the States, \$18.75 per month without board, or \$225 per annum; \$12.75 per month with board, or \$153 cash per annum. Eight years ago the average for white labor was stated at \$282 without board. The average at that time in certain foreign countries, according to estimates deemed most authoritative, were: Great Britain, \$150; France, \$125; Holland, \$100; Germany, \$90; Russia, \$60; Italy, \$50; India, \$30. No other country could make a showing at all comparable with the United States, except Australia and Canada.

More than half a century ago Matthew Carey, the economist, estimated the agricultural wages of the manufacturing districts of the Atlantic coast at \$9 per month and board. In the agricultural districts of Western settlements it was probable \$7 to \$8, possibly \$8.50 for all white agricultural laborers, and about \$12.50 without board. Comparing with present rates it is seen that the compensation of white labor has nearly doubled both for labor with and without board. Compared with the higher grades of skilled labor of the farm at the present time, the difference is still greater, but the average is fairly represented in this statement. This contrast is the result of our progress, the development of prosperous industries which increase the demand for agricultural products for home consumption, with the aid of further demand for food and textile materials by foreign nations.

It may be desirable to give some of the data from which the averages of the present rates of wages have been calculated. Aside from official or other systematic investigations, returns have been received from every State and Territory, which have been carefully consolidated. The most extensive outside investigation which has been considered is that of Mr. B. W. Snow, of Chicago, formerly Assistant Statistician of the Department of Agriculture, a thoroughly competent and successful crop reporter. He does not cover the entire field, but represents the central and

principal districts of large agricultural production. These averages are the actual mean of a large number of returns of wages paid by individual farmers reporting. The results in Ohio and Michigan are quite close to those of the official investigation in those States, and those for the other States may be equally representative of their labor compensation. The following table is presented:

States.	Per month.		Per day.	
	With board.	Without board.	With board.	Without board.
Massachusetts	\$17.50	\$30.00	\$0.90	\$1.12
Pennsylvania	13.25	20.62	.75	1.05
Maryland	10.00	18.00	.60	1.00
Virginia	9.00	12.00	.40	.60
Texas	15.00	20.00	.70	.90
Oklahoma	16.00	22.00	.75	1.00
West Virginia	12.25	18.00	.63	1.00
Kentucky	11.00	16.00	.50	.75
Ohio	14.86	23.17	.85	1.13
Michigan	15.62	22.71	.91	1.15
Indiana	16.00	23.50	.85	1.05
Illinois	17.95	25.25	.94	1.23
Wisconsin	18.18	26.76	.96	1.31
Minnesota	18.25	27.50	.92	1.25
Iowa	18.55	25.73	.97	1.28
Missouri	14.50	21.00	.65	.90
Kansas	16.00	22.00	.85	1.10
Nebraska	18.50	25.82	.94	1.27
South Dakota	19.00	28.00	1.00	1.45

While wages in Ohio are lower than in any of the States west of her territory, the averages for the last ten years are in some degree illustrative of the fluctuations that have occurred in other States, though more pronounced than in some of them. From 1890 to 1892 there was an increase in rate of wages. From 1894 to 1897, representing the period of business depression, there was a fall of \$2 in wages per month with board, and of \$3 for wages without board, which was a much larger percentage of decline than in some other States. Then followed an advance, slow at first, but promising a return in the spring investigation of this year to the rate of 1890, if not that of 1892. The following table is received from the secretary of the Ohio board of agriculture, Hon. W. W. Miller:

Year.	With board.	Without board.	Year.	With board.	Without board.
1890.....	\$15.00	\$22.00	1895.....	\$15.00	\$22.00
1891.....	15.50	22.50	1896.....	15.00	21.00
1892.....	16.00	23.00	1897.....	14.00	20.00
1893.....	16.00	23.00	1898.....	14.30	20.80
1894.....	15.00	22.00	1899.....	14.50	21.10

Wages are a little better in Michigan, but they have followed the same course as in Ohio during the last 10 years, with a larger percentage of decline during the panic years. The recovery for 2 years was rapid, and if continued the past year, as indicated by current information, the highest previous average has been regained. The following statement is received from Hon. J. S. Stearns, secretary of state:

Year.	By month with board.	By day with-out board.	Year.	By month with board.	By day with-out board.
1890.....	\$16.83	\$0.94	1895.....	\$15.45	\$0.86
1891.....	17.19	.95	1896.....	14.87	.82
1892.....	17.69	.98	1897.....	14.16	.79
1893.....	18.10	.99	1898.....	15.31	.86
1894.....	17.40	.88	1899.....	16.12	1.02

Ontario, across the Detroit River from Michigan, and across Lake Erie from Ohio, is a province of the Dominion of Canada and not in the United States, but has the same markets for its surplus, and its labor, even if native, may be influenced somewhat by conditions of these near neighbors in this country. It is at least curious

that a sagging in the rate of wages occurred at the same time as in these neighboring States, though less pronounced. The following statement is obtained from Hon. C. C. James, deputy minister of agriculture of Ontario:

Year.	Per year.		Per month.	
	With board.	Without board.	With board.	Without board.
1890	\$157	\$253	\$16.88	\$26.56
1891	158	257	16.66	26.87
1892	156	253	16.52	25.92
1893	160	255	17.13	25.97
1894	156	247	16.55	25.61
1895	150	246	15.38	23.45
1896	144	243	14.57	24.11
1897	144	236	14.29	24.47
1898	148	246	15.31	25.44
1899	149	243	15.38	24.93

The United States Department of Agriculture has published no detailed results of investigation since 1892, though some inquiries were made in each of the 3 years following, but for some reason were not published,¹ yet, 2 years ago, in the Yearbook of 1897, the totals of geographical divisions were given, without the State averages from which they were consolidated. It is greatly to be regretted that these important investigations should not be made once in 2 or 3 years at least. The above-mentioned averages are given as follows, in comparison with those of 1892:

Geographical division.	1895.	1894.	1893.	1892.
Eastern States	\$29.00	\$27.02	\$29.07	\$26.46
Middle States	23.80	23.64	24.82	23.83
Southern States	12.71	13.04	14.07	14.86
Western States	21.82	21.50	23.12	22.61
Mountain States	30.04	29.95	33.97	32.16
Pacific States	31.68	34.15	36.95	36.15
The United States	17.69	17.74	19.10	18.60

From the highest point in 1893 this indicates a decline of over 7 per cent in 1895. As the depressing effect of these periods is continually operative till their close, the culminating point must have been in 1897, as is shown by official investigation in Ohio and Michigan, and it is safe to assume that wages were at least 10 per cent lower in 1897 than in 1893, notwithstanding the localities reported where no apparent decrease was noted. The official investigations, as well as those of most of these local observers, declare the rate of wages lower. It should be added, however, that the men in positions of responsibility, possessed of peculiar skill in technical operations, were too scarce and too highly prized to be affected much, if at all, by the competition of the masses out of employment in the period of business depression.

The range of compensation is not usually as wide as that of the requirements of rural operations or as the differences in the native ability and acquired skill of laborers. The tendency is toward a demand for average wages by persons of inferior skill, or defective reliability, so that practically the difference is not so great in compensation as in the measure of real value in service.

In the New England States the medium wage with board is about \$18 per month, the better class of laborers getting from \$18 to \$22 per month, while less efficient labor is lower. In Massachusetts \$20 to \$25, for positions requiring skill and reliability, are not uncommon rates, and good or bad times affect prices less than the number of persons employed. With labor in other vocations in demand, good men obtain a quite steady rate of remuneration. In Rhode Island rates are very high. Prof. A. A. Brigham, director of the experiment station at Kingston, sends a table showing the annual wages of several classes of unskilled labor, in which the annual earnings of agricultural laborers are placed at \$407.28, which is more than those in cotton factories, bleacheries, stonework, and some other lines of industry, and is only exceeded by workers in woolen goods, metals, machinery, jewelry, and woodwork. It is a suggestive fact that colored laborers come up from Virginia in considerable numbers, and get \$18 to \$20 per month and board as farm laborers, returning in the autumn, thus getting about double the average wages paid there. It is probable that they are above the average of their class in enterprise and efficiency. It is said that they give

¹ For farm wages for these and later years see Appendix, pp. 137-144.

good satisfaction. It illustrates, however, the potency of opportunity and encouragement in augmenting the measure of reliability and efficiency of the crowded masses of colored laborers in the cotton States. In Connecticut there was little decrease of wages in the years of depression. Secretary Gold says wages were never higher than at present, while commodities and transportation are cheaper; that wages are so high as to prevent improvement of farms, and to render farm staples unprofitable, encouraging the introduction of specialties that promise better profit.

Wages in the Middle States average about 10 per cent lower than in New England. They are lower in Pennsylvania than in New York and New Jersey, and still lower in Delaware. The more skillful class of laborers in New York receive nearly the same rates as in the Eastern States—about \$18 to \$22 and board. Hon. Franklin Dye, secretary of the State board of agriculture of New Jersey, testifies that the range of wages with board is from \$12 to \$18 per month, and without board from \$25 to \$30, the latter usually including house and garden. In harvest time \$2 to \$2.50 per day is obtained, and for ordinary farm work 75 cents to \$1 per day. From \$16.50 to \$17 may be considered the present average with board. The more skillful labor is equally well paid in Pennsylvania, but much of the territory is remote from cities, where a larger proportion of the labor is cheaper. In Delaware and Maryland the wages are lower and the range narrower, mostly from \$10 to \$14.

The average wages in the Southern States, with board or rations, has varied at different dates from \$10.75 in 1866, when the scarcity and high price of cotton stimulated effort to meet the demand, to \$8.46 in 1879, the year that marked the depth of depression, before the resumption of specie payments.

Wages without board, a mode not much in vogue at any time, averaged at these dates, respectively, \$16.63 and \$12.65, and since above \$14, until, in the recent years of depression, they fell below \$13. The recent advance has been retarded by the low price of the cotton of 1898, but the rate appears to be now about \$9.50 with board and \$14 without board. While wages do not fluctuate with the price of cotton, they are affected more or less by cotton values. Contracts are made at the beginning of the year, and, of course, the sometimes serious price changes, caused by expectation of a large or small crop, can not affect the wages agreed upon for that year, but they do affect the price paid for picking in the autumn.

There is considerable difference in the rates of wages paid in the Southern States, those of the Atlantic coast being lower than in the States west of the Mississippi. In Virginia \$6 to \$12 is paid, according to quality, kind of labor, and location. In North Carolina good labor commands \$8, in some instances \$10. Cotton districts in Georgia supply labor at \$6 to \$8, and Alabama about the same. Prof. James H. Lane, of Alabama, writes: "The average cash wages are about the same they were ten years ago. Farm hands hired by the year average about \$75 and board. Day laborers are paid in this section 50 cents and board, or 60 cents without board. In harvesting our oats and the small amount of wheat raised, cradlers receive \$1 a day and board. The average price for picking cotton is 35 cents per 100 pounds." In Arkansas and Louisiana higher rates are more frequent, though modes of employment and range of wages vary greatly in the sugar district of the Teche and St. Marys rivers in Louisiana, the rice district of the southwest, and the cotton-growing hill lands of the north. Common labor in Texas is paid \$12 per month and board.

Cotton picking is mainly done at a specified price per 100 pounds of seed cotton, which when ginned makes about 33 pounds of lint cotton. The price varies in different States, according to the demand for labor, the Atlantic States paying much lower rates than those beyond the Mississippi. The Department of Agriculture reports, for the crop of 1898-99, an average of 44 cents per 100 pounds, from 33 cents in Virginia, 35 in Georgia and Alabama, to 47 in Texas, 51 in Missouri, and 62 in Oklahoma. Florida paid 58 cents.

The rates of wages in the central West have been quite uniform for many years, or since the inflation period and that of depression following, up to the late era of low prices and rural discouragement, when skilled men were retained without appreciable reduction, those of inferior skill were employed sparingly at somewhat lower wages, and very many were dispensed with, the farmer and his family managing to do the necessary routine work, while avoidable labor and deferred improvements were left to the chances of the future. The tendency for two years has been upward; more men are employed at better average rates, which are now fully as high as former averages, as a whole, though Michigan, Ohio, Kentucky, and Missouri report lower rates than the other States of the central valleys. The Missouri State Board of Agriculture makes the average with board \$14.20, and \$20.03 without board, which is as high as in the national series of similar investigations since 1880. For a good class of men in Illinois, \$21 or \$22 with board is a common rate for seven to nine months, with lower rates in winter, or \$18 for the year through. Occasionally a man of experience and reliability gets \$25 per month for the year. In Wisconsin

\$180 to \$220 is a rate often paid to tried men, and some stock feeders report rates from \$20 to \$25 per month. For the better class of laborers in Wisconsin, Minnesota, Iowa, and other States, \$18 to \$22 and board are not unusual rates, with a wide lower range for the mass of laborers of less skill and experience.

The labor of the arid mountain area is now very fully employed. Mining interests are active and paying very high wages, and agriculture is equally active in feeding cattle, sheep, and lambs, and in producing wool, fruits, potatoes, and other products for Eastern markets, besides providing for the needs of mining camps and other home consumption. Wages are fully as high as in 1892. In Colorado desirable laborers are paid \$25 to \$30 a month and board. In Montana and Idaho about the same rates are paid. The range in Utah is from \$20 to \$35. All who wish to work can readily find employment in any part of the mountain district, and for wages above the average of the territory east of the Mississippi.

There is at present a comparative scarcity of laborers in the Pacific States. Reliable men, experienced in dairying, fruit growing, and other rural occupations demanding skill and intelligence, can find employment at good wages in California, Oregon, and Washington. For such men \$25 to \$30 per month and board are paid. By the year \$250 to \$350 are common rates for such labor, according to degree of efficiency and kind of service. The tendency is to engagements by the year, which is desirable on the part of both the employer and employed, the only hindrance to increase of contracts of this kind being the inequality of labor requirements of different seasons—the difficulty of finding profitable use of labor between harvest seasons. The need is felt for greater diversification in agricultural operations, for more constant labor requirements than is afforded by most of the single specialties.

2. THE GENERAL COURSE OF WAGES.

Deferring a detailed consideration of the wages of 50 years ago, and coming to that of the reconstructive and scientific progress later, we find that no systematic, general, and thorough inquiry was undertaken till the close of the civil war, when in 1866 a series of such investigations was inaugurated by the writer, as Statistician of the Department of Agriculture, and continued at frequent intervals through a period of 26 years, during which time 9 reports were made of the results of such investigation. The methods of obtaining these averages were similar to those employed in various lines of crop reporting. The county boards of observation investigated and fixed upon county averages, and these averages were consolidated in Washington by applying the rate to the number of laborers in such county, thus making a true average. Of course, as in census work, obvious errors of record, extravagances, and impossibilities were eliminated. Whether a better result could be obtained by attempting a census of the wages of all laborers, even at immense expense, is very doubtful, from the difficulties, not to say impossibilities, of obtaining accuracy and completeness in such an enumeration. The attempt, heretofore, to obtain full returns from individual farmers of the value of all products of their farms, has proved a failure, and such a method of seeking a true average of farm wages would scarcely be less incomplete. Expert investigation and analysis is found to be the only practicable method of obtaining reliable information on many topics of inquiry included within the limitations of a house-to-house census. The result in this case proved to be quite consistent and in a high degree convincing and trustworthy.

As the old subdivision of the country into districts or groups of States was adopted at the outset, it was necessarily continued through the series. The averages at different dates of "wages per month without board," the laborer finding his own board, is thus stated for the several investigations:

Wages per month without board.

States.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Eastern.....	\$26.46	\$26.64	\$26.08	\$25.30	\$26.55	\$21.36	\$29.00	\$32.08	\$33.31
Middle.....	23.83	23.62	23.11	23.19	23.21	20.24	26.99	29.19	29.83
Southern.....	14.86	14.77	14.54	14.27	14.67	12.65	15.28	16.49	16.63
Western.....	22.61	22.01	22.28	22.27	23.26	19.81	23.25	26.39	27.84
Mountain.....	32.16	31.94	33.37	.....	.....	.....	.....	.....	.....
Pacific.....	36.15	34.87	36.78	37.78	37.22	40.11	43.50	46.38	44.00
Average.....	18.60	18.34	18.24	18.06	18.58	16.05	19.49	25.92	26.87

These averages are in currency, which was at par with gold after 1879, but prior to that date a reduction to a gold basis would not fairly represent the true value, as

wages did not follow closely the fluctuations of gold in Wall street, and the Pacific coast was practically on a gold basis all the time, though wages were highest there and higher in the boom period following the civil war than at any time since.

The highest wages are paid on the Pacific coast and the States of the Rocky Mountains rank next. This is the inevitable result of situation and circumstances, largely a climatic advantage, which favors the growth of products that can not be produced so well, if at all, in other parts of the United States. Twenty years ago the value of the products of one man's labor in California had become nearly twice as much as in the Ohio Valley, and more than three times as much as in the States of the Gulf coast, and labor properly shared in the superior profits. Far from injurious competition, avoiding overproduction, supplying home wants in cereals, vegetables, fruits, meat, and wool, and having in addition a rich surplus for outside markets of fruits in great variety, nuts, wines, hops, wool, mohair, and other products, California could afford a liberal remuneration for agricultural labor. The average for the fifteen years between the periods of financial depression may be fairly stated at \$37.40 per month.

Farm laborers in the arid mountain region were scarce until recently, and not very abundant now, the settlers doing their own work, immigrants arriving without capital engaging temporarily in various kinds of service till opportunity offered for individual exploitation, mining, stock growing, gardening, or fruit growing. For some years hired labor was so small a factor that averages of rates of wages were not included in results of these investigations.

The development of stock growing, and especially of feeding, the increase of alfalfa and potato growing, the production of fruits and vegetables for mining camps and towns, the management of irrigation, and more recently the culture of beets for sugar factories, and other rural enterprises have caused a considerable demand for laborers, and enabled producers to pay a rate of remuneration higher than in any of the States between the mountains and the Atlantic coast.

The next higher rates of wages are paid in the Eastern or New England States, the country of rocks and hills, of "abandoned farms," and high rates of yield per acre. Wages are high here because of the great variety of manufacturing industries, which make a demand for every kind of available labor. The average rate of wages of this group of States for the period of prosperity between 1879 and 1892 is \$26.20 per month, when laborers board themselves.

The Middle States between Virginia and the Dominion line, with nearly 5,000,000 people in their three great cities, and demand for all kinds of labor in great industries and personal service, keep rural wages nearly up to the New England level—about 10 per cent less—or, for an average of 15 years, \$23.40 per month.

The States of the central West, the center of national production and source of most of our exports, are becoming almost as conspicuous in manufactures as in agriculture, with a steady and increasing demand for labor, which is represented by a rate of farm wages only a little lower than that of the Middle or Atlantic States, making an average for the period of continued prosperity of \$22.47 per month.

The labor of the Southern or cotton States, is mixed; white laborers (relative to population few in number) dominate the mountain districts and foothills of the Appalachian range, while in the alluvial districts the colored race furnishes most of the labor of the great cotton plantations, now farmed to a limited extent by laborers hired by the month, but cultivated mostly under crop-sharing contracts, or a tenant system, with rents payable either in crop or a specified share of the products. As the returns of wages in these investigations refer only to service payable in cash, they represent really only a minor part of the total agricultural production, and yet the uniformity of the average, at these different periods, inspires confidence in their approximate accuracy. The average of the period, 1879 to 1893, is \$14.60.

Wages per month with board.

States.	1892?	1890.	1888.	1886.	1882.	1879.	1875.	1869.	1866.
Eastern.....	\$17.50	\$17.71	\$17.21	\$16.70	\$16.92	\$13.08	\$18.59	\$20.44	\$20.82
Middle.....	15.78	15.61	15.41	15.24	14.71	12.37	16.98	18.37	19.01
Southern.....	10.02	10.10	9.90	9.90	9.92	8.46	9.94	10.55	10.75
Western.....	15.36	15.00	15.09	15.20	15.60	12.75	15.44	17.04	18.48
Mountain.....	21.28	20.64	21.99	.....	.....	.....	.....	.....	.....
Pacific.....	24.25	22.20	25.08	24.37	23.73	25.88	28.13	28.69	29.48
Average.....	12.54	12.45	12.36	12.34	12.41	10.43	12.72	16.55	17.45

The range of differences is narrower than in that for wages without board, which were high in the days of abnormal prices in the inflation period following the war. This difference representing board was greatest in 1866, when prices of food products and everything else were high. The board allowance was greatest on the Pacific coast, averaging \$14.12; next greatest in the Eastern States, \$12.49; in the Middle States, \$10.82; in the central West, \$9.36, and \$5.88 in the Southern States. In 1892, as prices of products had declined, the board allowance was reduced in these districts respectively to \$11.90, \$8.96, \$8.05, \$7.25, and \$4.84, the fall being relatively greatest in the Pacific States and Eastern States. It is seen that the Middle States, with more home production and less dependence on the prairies, afford farm board at a cheaper rate. The central West makes a lower charge for board, but not quite in proportion to cheapness of products, the cost of domestic service being a factor in the charge. The lower cost in the South is due partially to a practical elimination of domestic service, the laborer usually taking the materials and otherwise furnishing bed and board.

In the central belt of States conditions affecting wages are more uniform, and here we see remarkable uniformity in the rate of compensation, considering the numerous minor causes of variation, as shown in the following tabular statement:

States.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Pennsylvania	\$23.00	\$22.80	\$22.24	\$22.52	\$22.88	\$19.92	\$25.89	\$28.68	\$29.91
Ohio	22.63	22.10	22.21	23.00	24.55	20.72	24.05	26.35	28.46
Indiana	22.75	22.25	22.50	22.20	23.14	20.20	24.20	25.42	27.71
Illinois	24.25	23.25	23.20	23.50	23.91	20.61	25.20	27.32	28.54
Iowa	26.20	25.41	25.60	25.33	29.21	22.09	24.35	28.39	28.34
Nebraska	25.75	25.50	25.59	25.00	24.45	23.04	24.00	33.25	33.37

From Pennsylvania to Iowa, nearly the entire distance from the ocean to the Missouri river is covered, and yet the widest difference in wages, in 1866 from \$27.71 in Indiana to \$29.91 in Pennsylvania, is only \$2.20. Nebraska at that date made the average of \$38.37, and is a striking exception to this uniformity, and for a very obvious reason. The war had closed, ex-soldiers were seeking homes, and the soils of that fertile region invited to settlement, while immigrants declined work for wages and bent their efforts toward home making. So rapid was this tide of immigration that for a time production failed to supply fully the current requirements of consumption, and prices were higher than in territory farther East, and therefore wages were abnormally high, though only temporarily, for in 1875 the rate fell 36 per cent in consequence of rapidly increasing supplies of all the products of the farm.

These local variations of the rate of wages are not without causes, which furnish opportunity for interesting and profitable study, as indicated by the following conclusions from a former report:

"Not only are striking differences shown to exist in groups of States, and greater still in individual State averages, but in every State there is variation in its county rates, due to the same causes which operate to differentiate the wages of geographical sections. One of these causes is density of population, as in the neighborhood of cities, which results in high rents and dear food, and wages corresponding. In such vicinage demand for skilled labor in gardening and fruit growing, as well as in general farming, is stimulated by the necessity for large supplies and the relatively high range of prices which they command, producing a competition which raises wages. In a county or a portion of a State marked by high intelligence and general education of its people, farm wages are high, because more in demand for a greater variety of production, and the service is more effective and more valuable. In other counties, distant from market, with scant railway facilities, and especially with poor roads to railway stations, demand for labor is less, and the products of labor are less valuable. As a natural result, in such locality there is less skill and ambition among workers. The more progressive will seek better conditions, and wages are consequently low because of less intrinsic value, of depreciation in quality."

In mining districts any development which gives employment to large numbers, as indicated in the local data of these investigations, causes labor competition and increased demand and price of products, raising the wages of farm labor. The establishment of any productive industry is followed by this economic result, as shown in these returns.

While the variation of rate of wages between these States is not at any given date, nor for any date since the resumption of specie payments, it will be observed that

Nebraska and Iowa, the center of activity in settlement and home making, hold up the rates a little above those of the States east of the Mississippi, simply because it is preferable to work land of one's own, that may be had almost for the asking, making hired labor scarce and relatively dear. In the older States, where population is dense, and cities and towns offering contributions to labor supply, especially for transient service in harvest, there is more competition and slightly lower rate of wages.

SOUTHERN LABOR.

It would be desirable to show precisely the relative compensation of white and colored laborers. In these investigations it was not practicable to give averages by races. The returns were by counties, and averages of the whole body of laborers were calculated. As a very large proportion of them are of the colored race, especially in cotton-growing sections, and as any white labor of the same grade of service is leveled in the competition, a true average for exclusively colored labor would approximate these records of Southern labor, which by reason of higher pay of whites in a few more responsible positions would be somewhat higher than the average for the exclusively colored. With this modification, the following table indicates approximately the difference, showing that the colored labor of the South commands scarcely half the rate of compensation of labor of other sections:

Years.	Southern States.		Other States.	
	Without board.	With board.	Without board.	With board.
1892	\$14.86	\$10.02	\$23.50	\$15.85
1890	14.77	10.10	23.01	15.52
1888	14.54	9.90	23.10	15.59
1885	14.27	9.90	23.07	15.55
1882	14.67	9.92	23.80	15.72
1879	12.65	8.46	20.35	12.91
1875	15.28	9.94	24.81	16.23
1869	16.49	10.55	28.29	18.06
1866	16.63	10.75	29.41	19.11

It is true that service contracts are generally on the share system, and that cotton picking is largely paid for by the hundred pounds, yet these rates of wages are everywhere current, they vary locally with the demand, and are fixed on a basis of compensation on the share plan and thus quite fairly represent labor remuneration.

SUMMARY BY STATES.

The rate of wages which represents as nearly as possible the total compensation of the labor is that per month, by the year or season, "without board," i. e., the laborer providing his own board from the total sum payable in cash, as in the case of nearly all industrial or other labor in cities, domestic service excepted.

The averages of labor so employed are as follows:

Wages without board.

States and Territories.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Maine.....	\$24.50	\$25.00	\$24.64	\$23.09	\$24.75	\$18.25	\$25.40	\$26.25	\$27.00
New Hampshire.....	25.00	25.15	24.38	22.80	25.25	19.75	28.57	32.66	32.74
Vermont.....	24.67	24.80	23.25	23.00	23.37	19.00	29.67	32.40	32.84
Massachusetts.....	29.70	30.00	29.50	28.75	30.66	25.00	31.87	35.96	38.94
Rhode Island.....	29.00	29.20	27.75	28.50	27.75	23.00	30.00	32.25	34.40
Connecticut.....	27.38	27.00	27.40	27.67	27.90	23.29	28.25	33.00	34.25
New York.....	24.55	24.45	24.13	24.00	23.63	20.61	27.14	29.28	29.57
New Jersey.....	25.50	25.10	23.33	23.60	24.25	20.22	30.71	32.11	32.27
Pennsylvania.....	23.00	22.80	22.24	22.52	22.88	19.92	25.89	28.68	29.91
Delaware.....	18.75	17.35	18.00	18.33	18.20	17.00	20.33	22.00	24.93
Maryland.....	17.50	17.67	18.48	18.20	16.34	14.00	20.02	21.55	20.36
Virginia.....	15.50	14.21	18.32	18.95	18.90	11.00	14.84	15.28	14.82
North Carolina.....	13.80	12.83	18.41	12.85	12.86	11.19	13.46	12.76	13.46
South Carolina.....	12.50	12.10	12.25	12.00	12.10	10.25	12.84	11.54	12.00
Georgia.....	13.50	13.13	12.60	12.47	12.86	10.73	14.40	14.70	15.51
Florida.....	18.67	19.35	18.00	17.80	16.64	13.80	15.50	16.10	18.00
Alabama.....	13.75	14.00	13.59	13.00	13.15	13.20	13.60	15.19	13.40
Mississippi.....	15.40	15.38	15.03	14.60	15.10	13.31	16.40	17.11	16.72
Louisiana.....	16.25	15.98	15.87	16.05	18.20	16.40	18.40	21.37	20.50
Texas.....	18.75	19.85	19.20	18.87	20.20	18.27	19.50	18.83	19.00
Arkansas.....	17.30	18.40	18.34	17.33	18.50	17.12	20.50	25.25	24.21
Tennessee.....	14.50	14.23	14.00	13.88	13.75	12.73	15.20	16.81	19.00
West Virginia.....	19.50	19.55	18.74	19.00	19.16	16.98	20.75	21.39	25.35
Kentucky.....	17.50	16.85	16.51	16.80	18.20	15.17	18.12	18.84	20.23
Ohio.....	22.63	22.10	22.21	23.00	24.55	20.72	24.05	26.35	28.46
Michigan.....	24.00	24.80	25.20	24.00	25.76	22.88	28.22	31.01	31.26
Indiana.....	22.75	22.25	22.50	22.20	23.14	20.20	24.20	25.42	27.71
Illinois.....	24.25	23.25	23.20	23.50	23.91	20.61	25.20	27.32	28.54
Wisconsin.....	25.25	24.35	24.65	23.54	26.21	21.07	25.50	30.08	30.84
Minnesota.....	26.00	24.60	25.75	25.50	26.36	24.55	26.16	28.61	31.65
Iowa.....	26.20	25.41	25.60	25.33	26.21	22.09	24.35	28.39	28.34
Missouri.....	20.50	20.25	21.00	21.35	22.39	17.59	19.40	24.47	26.75
Kansas.....	24.20	22.75	24.25	24.70	23.85	20.67	23.20	28.96	31.03
Nebraska.....	25.75	25.50	25.59	25.00	24.45	23.04	24.00	33.25	38.37
South Dakota.....	27.00	24.75	25.85	25.55	.....	28.56	32.50	.....	30.20
North Dakota.....	30.00	.....	.....	.....	.....	.....	.....	.....	.....
Montana.....	35.00	36.50	40.00	.....	.....	.....	.....	.....	.....
Wyoming.....	34.00	34.00	37.00	.....	.....	.....	.....	.....	.....
Colorado.....	33.00	33.75	36.00	33.00	36.50	35.00	38.50	.....	67.50
New Mexico.....	27.67	27.50	28.75	28.75	.....	22.10	22.75	.....	25.00
Arizona.....	33.00	38.00	25.00	.....	.....	.....	.....	.....	.....
Utah.....	33.50	32.30	33.50	30.00	.....	28.87	36.50	.....	44.71
Nevada.....	36.00	35.00	38.00	.....	.....	.....	.....	.....	.....
Idaho.....	35.50	36.25	39.00	.....	.....	.....	.....	.....	.....
Washington.....	37.50	37.00	35.20	38.83	.....	.....	.....	.....	.....
Oregon.....	34.25	31.60	32.56	34.00	33.50	35.45	38.25	.....	35.75
California.....	36.50	35.50	38.08	38.75	38.25	41.00	44.50	46.38	45.71
Average.....	18.60	18.33	18.24	17.97	18.94	16.42	19.87	25.92	26.87

While the yearly average of all classes of labor of the United States taken together since 1879 has varied only from about \$215 to \$230 by the yearly average, excluding the cotton States, has been about \$265 per annum for all employed by the year with a wide individual range mostly between \$200 and \$300, though in a few instances \$400 or more. The larger portion, however, are employed by the season, 7 to 9 months, rather than for the entire year. These rates are without board, the laborer boarding himself, though usually having house rent, wood, a garden, and other perquisites.

But in a large portion of the country the system most in vogue is that of wages with board, the laborer supplied with everything and paid a stipulated monthly wage. In a record of wages by States it may be preferable to give these cash averages, which are as follows:

Wages with board.

States and Territories.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.		
Maine.....	\$17.00	\$17.50	\$17.20	\$16.00	\$16.15	\$11.08	\$15.94	\$16.50	\$17.44		
New Hampshire.....	17.50	17.60	17.00	15.75	16.72	12.30	18.25	22.16	22.48		
Vermont.....	17.45	17.35	16.40	16.20	16.00	11.50	19.37	21.40	21.00		
Massachusetts.....	18.00	18.50	18.00	17.85	18.25	15.33	20.25	22.16	22.36		
Rhode Island.....	17.75	18.00	17.50	17.70	17.00	13.25	19.00	20.00	20.50		
Connecticut.....	17.50	17.83	17.17	17.20	17.37	14.23	18.50	20.75	21.54		
New York.....	16.50	16.65	16.30	16.52	15.36	13.19	17.80	18.64	19.32		
New Jersey.....	16.75	16.00	15.73	14.10	14.20	11.53	16.78	19.02	18.98		
Pennsylvania.....	15.00	14.60	14.50	14.12	14.21	11.46	16.10	18.05	18.84		
Delaware.....	12.00	11.15	12.25	12.63	12.50	9.50	11.67	13.00	13.25		
Maryland.....	11.33	11.25	11.84	11.50	9.89	8.95	11.42	12.00	12.76		
Virginia.....	9.67	9.47	9.25	9.34	9.17	7.66	9.21	9.65	9.36		
North Carolina.....	8.78	8.80	9.00	8.91	8.80	7.66	8.82	7.91	8.15		
South Carolina.....	8.40	8.62	8.00	8.25	8.10	6.66	8.19	7.34	7.66		
Georgia.....	9.00	8.37	8.81	8.78	8.70	7.88	8.79	9.70	9.67		
Florida.....	12.27	12.59	11.33	11.37	10.20	8.73	10.75	10.91	12.12		
Alabama.....	9.17	9.85	9.49	9.10	9.09	8.30	9.40	10.52	9.80		
Mississippi.....	10.46	10.50	10.09	10.00	10.09	9.28	11.25	11.21	11.58		
Louisiana.....	11.83	11.79	11.12	11.26	12.69	11.27	12.20	12.62	12.42		
Texas.....	13.00	13.30	12.60	13.72	14.03	11.49	13.87	13.21	12.72		
Arkansas.....	11.50	12.55	12.50	12.25	12.25	11.31	13.00	16.60	15.80		
Tennessee.....	10.20	10.12	10.00	9.74	9.49	8.69	10.00	11.00	12.58		
West Virginia.....	12.75	12.95	12.25	12.40	12.46	10.94	13.10	13.87	16.47		
Kentucky.....	12.40	11.70	11.33	11.69	11.75	10.00	12.00	12.57	13.65		
Ohio.....	15.60	15.10	15.00	15.50	16.30	13.34	16.33	16.74	18.96		
Michigan.....	16.00	16.75	17.00	16.14	17.27	14.64	18.46	20.08	20.48		
Indiana.....	15.00	14.78	15.30	15.30	15.65	12.76	16.14	17.08	18.72		
Illinois.....	16.50	16.35	16.00	16.60	17.14	13.01	16.87	17.69	18.72		
Wisconsin.....	17.00	16.75	16.80	16.78	17.90	13.81	16.45	18.47	19.87		
Minnesota.....	17.60	16.60	17.68	16.75	17.75	15.62	16.36	17.94	21.10		
Iowa.....	17.75	17.00	17.34	17.00	17.95	13.90	16.11	17.87	18.87		
Missouri.....	14.20	14.00	14.20	14.50	13.95	11.84	13.15	16.38	18.08		
Kansas.....	16.20	15.05	16.05	16.00	15.87	13.28	14.65	18.38	19.81		
Nebraska.....	16.80	16.60	17.18	16.50	16.20	14.86	14.75	19.18	24.64		
South Dakota.....	18.25	17.10	18.21	17.60	.....		20.50	.....			
North Dakota.....	21.00										
Montana.....	23.50	23.80	27.50	.....	.....		.....				
Wyoming.....	23.00	23.00	25.00	.....							
Colorado.....	22.00	21.00	23.00	21.25	27.08	20.00	21.14	.....	42.12		
New Mexico.....	17.85	17.83	18.25	17.50	.....	13.80	14.25	.....	16.50		
Arizona.....	22.00	21.50	16.00	.....	.....		.....				
Utah.....	22.30	21.00	22.30	21.00							
Nevada.....	24.00	23.00	27.00	.....	.....		.....				
Idaho.....	23.50	23.50	26.25	.....							
Washington.....	25.00	24.40	25.00	26.25	.....		.....				
Oregon.....	23.00	22.00	23.00	21.25							
California.....	24.50	22.40	25.67	25.00	23.45	26.27	28.60	28.69	30.35		
Average.....	12.54	12.45	12.36	12.34	12.41	10.43	12.72	16.55	17.45		

For the whole period the cash part of the compensation has averaged a little more than \$12.50 per month, or \$150 per annum, when employed by the year, including both colored and white labor.

Transient or day labor is paid at a higher rate. In harvest work the average from 1882 to 1892 ranged from \$1.48 to \$1.30 per day without board and from \$1.15 to \$1.02 with board.

At other labor not in harvest seasons the average rates were lower, but remarkably uniform at the different dates of investigation, with a range of 91 to 93 cents per day without board and of 67 to 68 cents per day with board. Of course there was considerable variation in the different States, harvest wages without board in 1892 varying from 92 cents in Georgia to \$2.25 in North Dakota and California, and in seasons other than in harvest from 62 cents in South Carolina to \$1.70 in Washington. Details of these rates in the various States are suggestive and interesting, but it is thought best not to burden this report with an excess of tabular matter.

3. WAGES FIFTY YEARS AGO.

Information concerning wages prior to 1850 can only be desultory and fragmentary, yet it is abundant, suggestive, and indicative of approximate averages. There is a difficulty in harmonizing data so various and wide in rate of remuneration. Local variations for similar service were proportionately wider than at present. When population was scattered and intercommunication difficult a surplus of certain kinds

of labor often existed in a district near to one of deficiency. Records of wages are numerous in New England. Rates were very low there before the era of manufacturing development, which began to dawn about 1820, becoming active ten to twenty years later, and gradually increasing the rate of general wages. So we find that here agricultural wages had already advanced by 1840, and more noticeably by 1850. In New Hampshire, in 1841, after factory towns had begun to drain the rural population, as a correspondent writes, "50 cents was paid for a day's work, which consisted of going into the fields as soon as it was light and working until 9 o'clock at night." Now a day's ordinary work on a farm there is paid \$1 to \$1.25 and \$2 in haying. It was the same in Maine \$10 to \$13 per month near towns and \$8 to \$10 in remote country districts. In Massachusetts wages were already considerably advanced, and from a record in Hampshire County \$125 was paid for the year 1841, and during that decade from \$5.50 to \$15 per month for various periods and grades of service. The bureau of labor of that State has records since 1752, when a day's labor on the farm was quoted at 33 cents, rising to \$1 (without board) by 1850, and after 1860 from \$1 to \$2.25. A Massachusetts correspondent, in Savoy, reported advance from \$8 in 1840 to \$25 or more in the war period. Another quotes from a farm account in Hadley, showing wages paid each year, increasing constantly, from \$12 in 1840 to \$14 in 1850, \$19 in 1860, and \$28 in 1865.

Rhode Island wages advanced early. In 1846 an old farm record shows that wages were \$16 to \$18 per month and board from March to November, for skilled Americans working from sunrise to sunset, of a quality now worth \$40 or more as working foremen.

A farm record in Washington County, N. Y., running 50 years from 1840, shows that wages increased from 75 cents to \$1.50 per day and that wages per month increased from \$14 to \$22.

In New Jersey in 1840 wages averaged about 50 cents for ordinary labor and 75 cents in harvest time. An account book of Joseph Burrough, of Camden County, records the names and wages of laborers each year—in 1845, at \$6.50, \$7, and \$8 per month respectively; in 1846, at \$6, \$7, and \$8.50; 1847, at \$7, \$8, and \$9, and one at 40 cents per day for the year; 1848, at \$6, \$9, and \$10.50; 1849, at \$100 per year. A sample statement from Salem County reports wages with board at \$8 per month by the year in 1840 and \$10 in 1850; and in summer, \$10 in 1840 and \$12 in 1850.

Wages in Pennsylvania were a little lower than in New Jersey. From 1840 to 1845 33 cents per day was the ordinary rate, 50 cents in harvest; there was a gradual rise to 50 cents in 1850, and 62½ cents in harvest. Before 1860 harvest wages advanced to 75 cents. Lancaster County, one of the richest agricultural counties in the United States, paid higher than average wages; in 1840, 50 cents per day, \$1 in harvest, and \$10 per month with board; 1850, \$11 per month, without change in day labor; 1855, \$11.50, with some increase in day rates; 1857, \$12. There was little further change in wages till 1860. In 1862, \$13 per month; 1863, \$14; 1864, \$16; 1865, \$20. The rapid rise was caused by increase of industrial activities toward the close of the war, aided by currency inflation. Very little labor was employed in the earlier period except with board. Prior to 1850 board was estimated at \$4 per month, at \$6 early in the sixties, rising to \$10 by 1865. These prices were for good, reliable laborers and for efficient reapers in harvest.

In the South there was practically no free farm labor, but slaves were hired by planters to a limited extent. So variable were rates in different sections for various service and so wide was the difference in skill and efficiency that an average would not be practicable. Before 1860, in Virginia and the Carolinas, a year's labor of a negro man is reported at about \$100; women for field labor, about half as much. In the cotton fields of the Gulf States and the sugar districts of Louisiana the rate for able-bodied men is reported at about \$125 per annum; women, \$75 to \$100.

Wages in Ohio were nearly the same as in other districts of farm labor remote from cities. There was considerable uniformity in wages up to 1849, when the migration westward was intensified by California gold-mining excitement, which unsettled and stimulated wages. For the better class of laborers 50 cents a day for ordinary farm work and 75 cents in harvest were usual rates. A few samples of progressive increase of wages will serve as effective illustrations. Mr. Joseph Allen, of Butler County, kept a record of wages from 1836 to 1841. In the earlier period he was a farm laborer, and in 1836 and 1837 he worked 9 months in each year for \$45. The record for 1836 is \$6 to \$8; in 1840, \$10 to \$12, and varied little from that figure up to 1849, when it gradually increased to \$12 and \$14, and to \$13 to \$15 in 1860, \$18 to \$25 in 1865, \$15 to \$18 in 1870, \$16 to \$18 in 1880, and the same in 1890. In Lake County, in northern Ohio, a similar record gives about the same rates, with increase to \$11 and \$13 between 1850 and 1862, jumping to \$18 in 1864 and \$20 in 1865.

Reports from Michigan make the usual wages in 1840 \$7 per month and board, increasing to \$10 in 1849. Another record makes the increase gradual from \$10 to \$12 up to 1857 and \$14 in 1860.

Wages in Illinois in the years following 1840 are reported about \$8 per month, increasing rapidly in the latter part of the decade. A member of the State board of agriculture paid \$16 per month in Champaign County in 1859, \$17 in 1860, \$15 in 1861 (when farmers were blue), \$18 in 1862, \$20 in 1863, \$22 in 1864, and \$24 in 1865.

Little farm labor was at first employed in Wisconsin, the settlers doing their own work. When employed \$8 was paid for good labor, increasing toward 1850 to \$10. The wages of boys and less skillful men were less. Similar conditions prevailed in Iowa, Missouri, and other States, and the smaller amount of labor employed was compensated at about the same rates.

Wages in 1840, as a broad generalization, were not much more than half of the present rate or of that of 1865, at the close of the civil war.

4. THE INFLATION BOOM.

The highest nominal rate of wages since 1865 was between that date and 1870. The increase was a natural result of currency depreciation, but was not due alone to that cause, nor was the increase in exact proportion to the gold premium on currency. The rate of wages was established yearly and could not fluctuate with daily gold quotations in the financial centers. While the difference in currency depreciation was reflected in a large measure by changes in rate of wages, and the rate of compensation varied greatly in different parts of the country, the quotations of currency depreciation were practically uniform, showing that other causes contributed to changes in wage rates.

In 1866 the average rate for Northern labor was 26 per cent higher than for a long uniform period following the resumption of specie payments. In 1875, instead of the difference in rate being more than that of premium on gold, it was less. Another cause had begun to operate to reduce wages, the monetary depression commencing late in 1873. Boom is the antithesis of panic, and hence the wages of prior years exhibited a larger increase than the current premium on currency.

California was in an anomalous condition. Her currency practically was gold, yet values were affected by the currency prices of products from the States. In this case, however, other causes had greater effect than the currency. Immigration was very active, land speculation high, young energy and ambition planned large rural exploitation, and laborers were in great demand, and therefore wages were very high. The average wages of the Pacific States were \$44 in 1866 and continued to rise to \$46.38 in 1869. We must remember that the normal wages of the Pacific States in the past—or the average and quite uniform wages from 1880 to 1893—are about 50 per cent higher than the average of Northern or white labor east of the Rocky Mountains, and this highest rate of the early period of scarcity is only about 25 per cent higher than for the later period. The reason why the Pacific States could pay so high wages is obvious. The productivity of labor there, its value in production, has exceeded that of other States in even greater ratio. It has surpassed that of the most productive; has been twice as great as that of many of them, and three times as great as that of some of them. In the division of profits, therefore, this excess of 50 per cent has fallen to the share of the laborer, who usually has obtained a reasonably fair show in such division, and ever will if he is self-respecting and intelligent in demanding what is just and reasonable.

The next highest rate of wages is paid in the Eastern States, and it is a noteworthy fact that the highest rate of the boom period, about 26 per cent above the later average, is almost identical with the highest Pacific States excess over the steady later rates. In this region of large population the advance after the war attained its height early and began to subside, wages falling from \$33.31 per month in 1866 to \$32.03 in 1869, gradually declining to \$29 in 1875, which was still 10 per cent higher than what may be deemed the normal average of the long period of activity and prosperity following the panic which commenced in 1873.

The date of highest wages in the Middle States was also in 1866, and the excess at the top of the boom over the later normal average was over 26 per cent, practically identical with the difference in the Pacific States and in the Eastern States. Wages were slower in declining than in the Eastern States, retaining still in 1875 more than half the advantage held in 1866, or 15 per cent. In this heart of the country business was more varied, commercial and transportation interests were much larger, holding demand for labor a little better than the Eastern States and making the decline in wages slower.

The highest point in Western wages was \$27.84 in 1866, just after "the boys" got home from war service, engaged ambitiously in rural enterprises of all kinds, and sought to fill depleted stocks and supply the strong demand for farm products of every description. The excess above normal wages was nearly the same as in the other sections, not quite 24 per cent. The decline was quite as rapid as elsewhere, aided by great increase of production, the result of the energy and zeal of farmers and laborers and the enlarged use of agricultural implements. In 1869 the average was \$26.29, and in 1875 it fell to \$23.25, within 4 per cent of the rates since prevailing, though there was still a much larger percentage of currency depreciation.

In the South there was less difference. After resumption of specie payments wages were more uniform than before and the highest rate, \$16.65 in 1866, was scarcely 14 per cent higher than that of the later uniform period. At this time cotton was high and the motive for high wages was strong. For a year or more there was little reduction in wages, though the price of cotton was declining. In 1875 the rate was \$15.28, within 5 per cent of that of the average of the later period.

What was the reason for this increase of wages in this period following the war? It is not difficult to indicate the causes, but not so easy to assign to each its exact share in the advance. So far as it was due to depreciated currency it was apparent rather than real. All foreign goods were paid for in gold, advancing the currency price by the amount of premium, but the price of many domestic commodities was not so inevitably affected. In the resumption of industrial activities, to some extent their reconstruction, after the upheaval of the war period, the demand for labor became very active and the supply inadequate by reason of the heavy losses of four years in field and camp. This insufficiency of supply would inevitably increase the rate of wages under the pressure of any ordinary demand. To restore the wastes of war, demand for labor arose in all directions in construction, renovation, and development, in production of food and clothing, in railroad building and equipment, in farm and factory, all tending to unusual demand for labor and increase in rate of wages. It will readily be seen that reducing wages to gold valuation does not take away this increase of wages, and especially it does not eliminate the fluctuations of that period, showing that depreciated currency was not the sole cause of variations from normal rates, which were greater in some districts than others, greater in some years than others, in some cases more and in others less than the premium on gold. These causes worked together and diminished in their operation together, increasing production, gradually relieving the excessive demand, and relaxing its unusual call upon labor and increasing prosperity, tending to reduce the gold premium approximate to par.

5. PANIC REDUCTIONS OF FARM WAGES.

The great monetary depression in the later financial history of the United States was in 1873 to 1879, lasting 6 years, and reducing prices and wages more and more until the end. Its effect was gradual and cumulative. All prices of commodities, except as the result of comparative scarcity, were lowest in 1879. Farm wages were also lowest that year. Comparing with 1875, when the influence of depression began to be positively felt in wages, the fall of the subsequent four years in the total labor of the United States, as the result of investigations shows, was about 18 per cent. It was of course felt in its severity in the centers of manufacturing, commercial, and financial business. The decline in these few years in the Eastern States—not the entire reduction, but most of it—was 26 per cent. Large numbers in all the industries were out of employment, and many were seeking work or a temporary living from land cultivation, competing with the regular supply of farm laborers. This affected first and most seriously the farm labor supply of these great industrial districts. In the Middle States the decline was 25 per cent. The Central West was at first little affected; consumption of agricultural products and exports were still liberal. Ultimately the surplus labor of the factory regions began to migrate westward, both as farmers and farm laborers, and competition in wages and in production asserted its influence; yet it was never felt as in the Middle and Eastern States, as we find the reduction in wages was scarcely 15 per cent. The South was nearly in the same category, with a reduction of not quite 17 per cent. Notwithstanding its exports of more than two-thirds of the cotton crop, it could not fail to feel the effects of a depression that partially paralyzed the productive and constructive energies of the country of which it is a part, but it felt them far less severely than those centers of industry and business. The Pacific coast, so distant, so nearly independent and self-supporting, with a currency that had suffered no depreciation, scarcely felt the effects of the general depression in the rates of its agricultural wages, which declined only 8 per cent. It could not escape entirely, but was affected only a third as much

as the East, and half as much as the agricultural West and South. These geographical districts show these differences in decline of wages without board in four years:

Districts.	Without board.		With board.	
	1875.	1879.	1875.	1879.
Eastern	\$29.00	\$21.36	\$18.59	\$18.03
Middle.....	26.99	20.24	16.96	12.37
Southern.....	15.28	12.65	9.94	8.46
Western.....	23.25	19.81	15.44	12.75
Pacific	48.50	40.11	28.13	25.88
United States	19.49	16.05	12.72	10.43

The reduction above is calculated from wages without board, or total wages. The result is not very different for wages with board, except in the Eastern States, where the board allowance declined heavily and the reduction is about 30 per cent in the cash wage.

While the laborers suffered in decrease of income, even much more than the fall in wages indicates, because fewer were employed, and the sum of wages paid was much reduced, the farmer sustained losses and felt great discouragement on account of low prices and diminished income, and if in debt was liable to default of interest and possible mortgage foreclosure.

6. RECOVERY AND STEADY UNIFORMITY.

On the resumption of specie payments in 1879 recovery was very prompt and rapid. With restored confidence, the wheels of business began to revolve in every line of industry, and the farmer at once felt the impulse, resumed his routine of cultivation, planned improvements, and employed more labor. Wages necessarily advanced, and at the next investigation, in 1882, the increase throughout the United States averaged over 15 per cent. The extremes were found on the ocean coasts, the advance in the Eastern States, on the revival of manufacturing industry, being 24 per cent. Industrial labor in this region exercises a controlling influence, agricultural labor being a small and relatively unimportant factor. As adverse industrial conditions reduced agricultural wages most in this region, so a revival of industrial prosperity increased rural wages more than in any other portion of the country.

On the Pacific coast a remarkable state of things appears. There the depression had scarcely been felt. The very high wages of the early days had constantly declined as immigration enlarged the labor supply. As there had been no depression, there was no recovery. The surprising prosperity of the coast, its booms in gold, in wheat, in sheep and cattle, in fruits and wines, attracted such a stream of immigration that labor constantly increased in abundance, and instead of an advance in wages, a decline of 7 per cent is noted in these regions. It was still high, not quite down to the normal level of the subsequent period of steady uniformity which has so long characterized the agricultural development of the Pacific coast.

In the Central West the advance was about 17 per cent. If calculated on the rate of wages with board, it was more, as in 1879 this rate of payment had fallen very low. In the Middle States and in the South the advance for 1879 to 1882 was nearly the same as in the West. The percentage of increase is a little larger than the above if calculated on the cash part of the rate with board. The record of these changes is as follows:

Districts.	Wages without board.		Wages with board.	
	1879.	1882.	1879.	1882.
Eastern	\$21.36	\$26.55	\$13.03	\$16.92
Middle.....	20.24	23.21	12.37	14.71
Southern.....	12.65	14.67	8.46	9.92
Western.....	19.81	23.26	12.75	15.60
Pacific	40.11	37.22	25.88	23.73
United States	16.05	18.58	10.43	12.41

These figures exhibit a striking change of conditions. So great a change in so short a time could not be the result of accident or slight cause. A radical difference in existing conditions appears. Discouragement and despondency have been followed by hopefulness and courage. The farmer begins to see some profit in labor and demand grows while wages advance.

Now follows a period of steady prosperity which from year to year shows no appreciable fluctuation in wages. At every investigation the national average is \$18 and a fraction per month for wages of all classes and races. In 1882 it was \$18.58. In 1885 some minor financial troubles existed and a sensitive public confidence showed some slight signs of disturbance, reflected possibly in the reduction of wages in that year to \$18.06. The cloud soon passed away, and thenceforth, while wages were remarkably uniform, there was a barely perceptible tendency to advance, the average being \$18.24 in 1888, \$18.34 in 1890, and \$18.60 in 1892. The same general uniformity is seen in the several geographical divisions, the variations being very slight and really too small to challenge investigation as to causes of difference.

The contrast between the steadiness and uniformity of wages in this period and the frequent changes in the preceding period is a very strong and suggestive one. It leaves no room to doubt the injurious effect of business depression, of conditions tending to disturb confidence in financial stability, upon the interests of the farm laborer and upon his rate of wages. Such depression not merely reduces the rate of his compensation, but makes it more difficult for him to find employment at all. The contrast shows that anything that reduces the profits of the farmer depresses his hopefulness or destroys his ambition, and affects injuriously at once the wages of the farm laborer and his chances of employment.

7. EFFECT OF RECENT DEPRESSION.

What effect on wages and employment had the panic of 1894-1897? It had a seriously injurious influence. Industries are more developed, conditions more settled than formerly, and there is more capital to sustain a siege of depression, yet its effects can not be avoided. Some have thought that wages have not been reduced because experienced employees in responsible positions have held positions and pay during those four years of disaster, but the masses of less efficient and trusted laborers were compelled to accept lower rates or give place to some of the multitudes seeking employment. A still more deplorable alternative was the loss of a situation because the employer had decided to do the best he could with help in his own family, since he saw a doubtful chance of profit in hired labor. There are large districts where the loss to laborers in the recent panic was far more in nonemployment than in working at reduced pay. In the richest farming districts of the West, where dairying, cattle feeding, and other specialties requiring skill and attention through the year are prominent, farmers disliked to lose experienced men and the men declined to take lower compensation, and this tended to sustain accustomed wages to a certain degree among the higher classes of laborers. The ordinary laborers had no such safeguard, and were reduced to a minimum both in numbers and rates of wages. This is not mere theory. It is the record of fact and experience in every part of the country by multitudes of careful observers of wide observation. There are districts where the labor supply was not excessive and others where there was no little destitution from inability to find work at any rate. This accounts for some disparity of view on this subject among intelligent reporters.

The following statement on this subject is made by Mr. B. W. Snow, of Chicago, after a large experience in agricultural investigation, in which farm wages has had a place:

"During the industrial depression of 1894-1897 there was some decline in farm wages throughout the West. The decline, however, was not anywhere near so heavy as was the decline in wages paid and the lack of employment in other lines of industry. The lack of employment for large numbers of men in cities and smaller manufacturing towns forced a very considerable number of such persons to leave cities and towns and seek employment on the farms in the surrounding country. It would be difficult, of course, to say what percentage was added to the regular supply of farm labor from this class, but it was enough to materially affect the farm labor market.

"In the Western States those who cultivate large bodies of land and require much labor usually hire a certain number of men by the year or by the season, and in addition to these, during the stress of work like harvesting, use as much extra help by the day or month as they find necessary. The owners of small farms, however, who with the assistance of their own family are in a position to do a greater part of their own work, usually hire such additional help as they may need by the day or by the week. For a great majority of farmers this employment of extra help for a short period

when most needed is undoubtedly the most convenient. The effect, however, of this custom upon the quality of farm labor is very bad; it makes employment uncertain and tends to develop a spirit of shiftlessness and unrest. The result of industrial depression is to largely increase the amount of help available for such hiring, but with the return of industrial activity in cities this class of temporary farm help will become smaller.

"Any industrial disturbance which throws men out of employment in the cities will have its most marked and most permanent effect upon rate of wages paid by the month, because it forces to the country a class of men who are not all around good farm laborers, such men as the practical farmer would hire by the month; to the contrary, they are a class of men who are most available for hiring by the day, and, as they work cheaper, a great many farmers who otherwise might hire by the month are constrained to rely upon securing these men for a short period."

The South, with less labor employed in industries outside of agriculture, was less affected by the industrial paralysis of 1894-1897. So prominent is cotton culture in her agriculture that depression depends mostly upon the price of cotton. When cotton was scarce and high it was expected that larger crops would bring lower prices—as they did—and growers expected to be obliged to reduce the cost of production; but when the plantation price went below 8 cents—down to 5, and even 4, when the great crops of 1894, 1897, and 1898 were made—then the pinch came and real depression was felt, and growers were constrained to reduce wages. Hitherto wages had been only moderately affected by changes in condition of general prosperity. Wages had met with fluctuations, but had not suffered much reduction. The testimony of many agricultural experts assures a reduction of from 10 to 25 per cent at the depths of such depression. A few quotations from letters of representative men, received during this investigation, will suffice to show approximately the extent of such reduction. Prof. J. S. Newman, of Clemson Agricultural College, South Carolina, writes:

"Wages for grown field hands on cotton plantations averaged about \$6 and board while cotton sold at 4½ to 5 cents. When cotton brought 9 to 10 cents, average wages were about \$8. The board usually consists of 14 pounds of corn meal and 2½ pounds of bacon per week. If sirup is issued in part, the meat is proportionately reduced."

Dr. W. C. Stubbs, director of the Louisiana Experiment Station, shows clearly that reduction is due almost solely to the extreme cheapness of cotton by the fact that wages of the sugar districts were far less affected, as follows:

"On the line of our sugar belt the low prices of cotton have not materially affected the price of labor with its decline; whereas, for the extreme northern portion of the State, remote from other industries, the decline of cotton has very materially reduced wages. I should say that, on the whole, when worth 8 or 9 cents, labor is worth 60 to 75 cents per day, but when it has declined to 4 cents per pound, labor has declined from 60 to 40 cents. I do not think there is much disposition to increase wages at present; that is, for the present crop of cotton. It will not be done by thoughtful farmers, if they can prevent it, since with favorable seasons larger areas will be put into cotton and a big crop produced, and the result will be a tremendous reduction in price."

The rural industries of Louisiana are geographically separated and quite distinct, and labor conditions vary in each. Cotton occupies the north beyond the Mississippi; sugar, the south; rice, the southwest and other watered or swampy districts; and fruit and market gardening, the eastern and shore counties.

Prof J. H. Connell, director of the experiment station of Texas, a State with many and various agricultural interests—stock growing, cattle feeding, cotton and sugar growing, etc.—thinks the price of labor did not respond to the drop in cotton to 4 cents, but says that land rentals sympathized with the reduced price of the product, \$4 lands renting for \$3 during 1898-99, and that labor in cotton picking was reduced throughout Texas from 40 and 50 cents per hundred pounds to 30 and 40 cents when cotton fell from 7 cents to 4. At interior points cotton has not been sold for 8 cents for several years. He adds:

"Wage labor has, with few exceptions, been maintained at 90 cents per day (the laborer furnishing his own supplies) for the last decade, or, when the landlord furnishes the supplies, the laborer is paid at from \$12 to \$15 per month upon the majority of farms throughout this section. It should be borne in mind, however, that cotton farming is done upon the share or rental system, in many cases no wages being paid except during the cotton chopping season, when 'day labor' prices are gladly paid by those who have cotton to chop."

"Cotton chopping" is cutting out the surplus cotton to a "stand," or certain distance from plant to plant, according to richness of soil, and with these extra plants the mass of springing weeds. It must be done speedily or the plants will be smothered.

Official and other investigations give testimony on the subject, all in the same direction, showing conclusively that in the period of business depression there was serious injury to labor interests. Unfortunately there was no complete investigation by the Department of Agriculture, and none whatever after 1895, when the influence was only felt in a limited degree. It serves, however, to show the tendency of depression to lower wages. The average without board in 1893, in this investigation, was \$19.10; in 1894 it was reduced to 17.74, a decline of 7 per cent. The average of 1895 is \$17.69. An investigation in 1897 would doubtless have shown a material further decline.

The Ohio official investigation made an average in 1893 of \$16 with board, \$15 in the first years of the panic, and \$14 in 1897, a reduction of 12 per cent. The Michigan investigation by the secretary of state showed a decline in four years from \$18.10 to \$14.16, or nearly 22 per cent. The official investigation of the Province of Ontario, north and east of these States, but in the Dominion of Canada, showed a decrease in wages by the month, with board, during the same time from \$17.13 to \$14.29, a decline of nearly 17 per cent. During the same time wages of persons employed by the year, more permanent and steady in rate, declined only from \$160 to \$144, or 10 per cent.

Some States were affected far more than others, but all felt the influence of depression in some degree. While the rate of wages was decreased by 10, 15, and in some States 20 per cent, according to the pressure of oversupply of laborers and the absolute necessity of work, the greatest labor loss suffered was in nonemployment of multitudes who were wanted in prosperous times but whose services in years of panic were dispensed with, the farmer and his family attending to routine and unavoidable service, and postponing work that yielded no immediate returns, and farm improvements that could only represent investment of capital.

During these four years the Pacific coast farm laborers first experienced the discomforts and distresses of "hard times." Wages had been tending downward for thirty years, yet all the time relatively high, the highest farm wages in the country. The panic which was so long and severe in other sections of the country "in the seventies" was unknown to farm laborers on the Pacific coast. Prior to 1894 demand for efficient labor was active and rates of wages high. With constant increase of population there was a large increment of laborers. Industries had become established and conditions settled, the supply of labor generally adequate, and wages more moderate, yet still liberal. The pastoral interests became unprofitable. Horses in the northern districts, in great herds, without care or control, were breeding worthless animals that could find no market, and were slaughtered by thousands at canning factories for foreign markets. Drought destroyed large numbers of cattle, and droves of thousands went to more eastern pastoral ranges. To cap the climax, the Wilson law condemned to unprofitableness and threatened bankruptcy the woolgrowing industry. For once the coast felt the effects of the panic of 1894-1897 in many directions and with considerable force. In Oregon men were glad to work for 50 cents a day and many worked for their board. In California there was a marked reduction of ruling rates of farm wages; laborers cheerfully accepted a lower rate of pay, knowing that the cut was necessary and hoping to tide over a situation which they hoped was temporary. After 1897 conditions began to improve. Various mining districts attracted large numbers of laborers; the call for soldiers for the Philippines relieved the pressure of the unemployed. Activity in handling war supplies in San Francisco made a further demand for labor there, so that when 1899 came in there began to appear an actual scarcity of labor. Wages had been advancing and still further advanced. Demand was active for the service of all capable of working in any lines and compensation ample. This is the situation to-day, emphasized in certain directions by a still stronger demand.

A summary of the facts concerning the reduction of wages in the depression of 1894-1897 may be thus stated:

The average of farm wages was everywhere reduced; the unemployed labor was much greater in proportion in some States than in others, causing differentiation in the percentage of reduction; the fall was less in skilled and more responsible positions, especially in sections where they were numerous and influential; in the inferior classes of labor wages were cut heavily, the competition for them being strong from the masses of the unemployed. But by far the most serious losses that befell farm labor was the failure to obtain employment on farms in any lines or at any regular rate of wages.

CHAPTER IV.

TENANT FARMING AND CROP SHARING.

Farm labor, in a large and true sense, is the work of the farmer, the tenant, the crop sharer, and the laborer hired for wages. These forms of effort are inextricably involved, the farm laborer of one year being the farm owner of another, and the sons of farm owners laborers temporarily, tenants later, and ultimately proprietors. In this country land titles are not tied up by primogeniture, nor agricultural classes held by caste to the semiserfdom of social and industrial conditions. It is impossible to chain an American to a life service in any industrial class.

Much ado has been made of the dangers of land monopoly. Bonanza farming has been deplored, and while the lamentation over it has had little time to dry its tears these great farms have been disintegrating. As a system it is a temporary speculation, a depletion and sale of fertility, a pocketing of the plunder. It is followed by division of the lands to small proprietors, who will eventually restore productivity by recuperative processes and intensive farming. The great ranches have been a great bugbear of the same kind. Already has restoration commenced division into small ranches. In the northern and central ranch districts methods are fast changing; the natural hay is supplemented by alfalfa, and the forage feeding in winter follows; lamb fattening causes a movement of corn from prairie to mountain, and a transformation scene appears which will eventually include and beautify the whole arid region. The genius of our institutions does not favor land monopoly, and while railroads had been granted nearly two hundred millions of acres, and the whole world has been invited to a free division of the other hundreds of millions, railroad lands are forfeited and unsold, great holdings are subdivided, and every decade the average holding becomes smaller and the percentage of area unimproved is decreasing, as is shown by census enumeration:

Years.	Average acres.	Percentage unimproved.	Years.	Average acres.	Percentage unimproved.
1880.....	121	81.1	1860.....	190	37.9
1890.....	126	84.7	1850.....	212	39.6
1870.....	167	85.4			

In a half century the average size has been reduced nearly one-half, and it will not be long till the average size of a farm is less than a hundred acres.

Similar short-sighted opinions have been gravely presented as to the tendency of tenant farming. Some tenant occupancy is inevitable and is found to exist in all countries. While tenant farming does not benefit the land and is generally a hindrance to progressive agriculture, it is temporary as to the individual tenant, as there is no tenant class. The tenant should be encouraged to become a proprietor, as is usually the case.

Superficial writers quote the arbitrary classifications of the census, without analyzing conditions to find the meaning of the figures, which are as follows:

Divisions.	1880.			1890.		
	Cultivated by owner.	Rented for—		Cultivated by owner.	Rented for—	
		Money.	Share.		Money.	Share.
North Atlantic.....	584,847	49,011	62,281	537,376	52,120	69,073
South Atlantic.....	411,673	71,946	157,810	461,057	96,078	192,445
North Central.....	1,350,225	88,743	256,000	1,474,066	147,248	302,488
South Central.....	565,556	105,082	216,000	668,972	151,921	265,899
Western.....	72,006	4,565	7,158	128,237	7,292	10,349
Total.....	2,984,306	322,357	702,244	3,269,728	454,659	840,254

Of 4,564,641 farms in 1890, 1,294,913 were cultivated by tenants, or 28.4 per cent, being an increase in ten years of 2.6 per cent. This seems a large proportion, but the figures are deceptive. Tenant farming in the South is so only in name; a large proportion of the 706,403 so-called tenants are farm laborers in the guise of tenants, simply from aversion to personal supervision and control, so suggestive of former involuntary servitude. It is simply absurd to attribute, as some do without thinking, this peculiar phase of the free-labor movement to an unfortunate tendency to reversion to a kind of pseudo-feudalism or vassalage to land monopoly. Eliminating this we have, for all other parts of the country, 2,728,209 farms, 518,510 occupied by tenants, or about one-fifth.

It is inevitable that there should be some increase of tenant occupancy, especially on lands which were practically given away to settlers. Where land is had for a mere record fee there is little place for tenants. In the course of years, as lands become valuable and settlers prosperous, many seek the towns, to educate their children or to enjoy well-earned ease, and their farms are rented, often to a son who expects ultimately to own the property. Such changes increase tenant farming, but they do not indicate a tendency to land monopoly or soil deterioration. A prosperous merchant or other business man in a thriving agricultural community may invest his profits in land, more from an expectation of rise in value than of profit in renting, and he is usually willing to sell at a fair price. A far-sighted business man will be sure to sell before land values become stationary or decline and before the tenant has depleted the fertility and reduced the rate of yield.

There are instances reported of wealthy investors buying up large tracts to hold. While this practice is to be deprecated, it is usually speculative and temporary rather than permanently monopolistic, and has not always been a business success. Imitating the example of owners of great estates in Europe, some of our nouveaux riches are securing game preserves, mostly mountainous and comparatively useless to agriculture; but if the practice should increase it might encroach seriously on lands needed for cultivation. As lands in this country can not be entailed and are subject to all the influences that impel frequent changes in ownership, it is hoped that the habit of land monopoly may not be fostered in this way. A remedy exists in taxation, and these great tracts can not be concealed, like personal property.

The record of the census makes an increase in tenants between 1880 and 1890 from 25.6 per cent of the total number of farms to 28.4 per cent. Every geographical division shows an increase except the Western, or mountain, and Pacific coast States, which records a decrease from 14 to 12.1 per cent.

The increase in the North Atlantic States is from 16 to 18.4 per cent; the North Central (or Ohio and Missouri valleys), from 20.5 to 23.4 per cent. In the South, under its so-called tenant system, the increase in the South Atlantic States is from 36.1 to 38.5 per cent; in the South Central from 36.2 to 38.4 per cent, where forty years ago tenant farming was scarcely known. What the future will reveal can not be foretold, but in this investigation several experts of large knowledge of agricultural conditions report a tendency of the last few years to return from town to country.

The proportion of rents payable in cash increased materially between 1880 and 1890 and it is believed to be still increasing. In 1890 the proportion in the United States was about 35 per cent, an increase of nearly 4 per cent. Cash rentals are in largest proportion in the North Atlantic States, or 43 per cent of all farms rented. In the Central West the proportion is 33 per cent, a large increase. The proportion is increasing in the South, slowly in the Atlantic States, and more rapidly in the Southwest. In 1890 the cash rentals were one-third of all tenant farms. This tendency is welcomed, as it indicates more prosperous conditions, more enterprise and courage in assuming the risks of bad seasons, and greater inducement to skill and energy in securing larger profits.

The cash rentals vary greatly, according to productivity and farm equipment. They usually amount to more than fair interest on the value of the property, if possible, to cover tendency to soil exhaustion. National or State enumerations of the rates of such rentals are not taken. One exception may be noted, that of Missouri, which returns as the average \$2.90 per acre for corn, \$2.60 for wheat, \$2.35 for oats, \$3.60 for cotton, \$3.95 for tobacco, \$2.10 for flax, \$2.80 for meadows, and \$1.85 for pasture. Cotton lands in Texas are often rented at \$4 per acre. In the period of depression such rents were frequently reduced to \$3 per acre. In Georgia there is great difference in fertility of soils, and cash rents vary from \$2 or less to \$5 per acre.

There is one cause for increase of tenant farming that has no connection with non-resident ownership of land. In the settlement of our public lands every man wanted not only a farm, but a large one. Nearly every settler was more or less a speculator; he knew his farm would some day be valuable, and acquired as large acreage as

possible. He realizes that he can not manage it advantageously; he needs more labor, and thinks farm wages too high, so he seeks to rent land instead of hiring labor, and prefers usually to rent for a share of the produce. He finds relief from care in this method, and the laborer has more freedom, does more work, and gets from his labor better compensation. Fertility may not be so well sustained, but the owner, for the time being, appears to be satisfied. It is not good farm economy, and the children of the renter will not be benefited by it. Most farmers have more land than they can cultivate well with the labor they have to expend upon it; and not everyone has the executive ability to prevent leaks and loss in large employment of labor. The desire to get a profit from surplus land running to weeds and waste, and at the same time avoid the care and risks of hired labor, is a painful cause of increase of farm tenancy. This feature does not indicate a tendency to land monopoly; on the contrary, such a system will in the long run be unprofitable to the owner, and he will be glad to be rid of land that he can not cultivate advantageously.

The predominant mode of renting is still for a share of the product, except in the New England States, where cash rents are preferred, and in all of them, Vermont excepted, more numerous than share renting. The proportion of the product accorded to the owner varies from one-third to one-half, according to the terms of the contract, the use of stock, and implements belonging to the owner increasing the proportion of rent. From a careful consideration of data examined, which may not be sufficient to warrant close statements of averages, the allowance for the bare land would evidently be near two-fifths of the produce. Missouri has just made a statistical investigation and obtained some hundreds of estimates from the correspondents of the board of agriculture, and finds that the tenant pays 40 per cent of his product of corn against 38 per cent in 1895. For wheat lands the rent was 37 per cent, the same as in 1895. For oats the rent is the same. The rent of cotton land is 32 per cent instead of 35 in 1895. For tobacco land 39 per cent is paid, and for potato land 38 per cent. Meadows require less labor and the renter is required to pay 47 per cent. From various parts of the West casual statements of rental shares are received, varying from one-third to one-half of the produce, according to productivity of the soil and local value of products, but apparently averaging nearer to three-eighths or four-tenths.

Share cropping is still a common mode of land occupancy in the cotton States. Unwilling to work for wages and be under control of owner or overseer, the negro laborer, without mule or subsistence supplies, makes the best share terms he can, depending on the landlord for all advances, to be taken from his share of the crop. There appears to be some increase of contracts for wages and a still larger increase in renting land, sometimes for cash or a stipulated rent in cotton or a certain share of the crop. In North Carolina the share of the laborer varies (with his ability to furnish more than his muscle) from one-fourth to one-half of the crop. Governor Northen, of Georgia, reports the ordinary rent of 40 acres as 2 bales of cotton, the laborer paying the hire of the mule. Professor Duggar, of the experiment station of Alabama, thinks the percentage of farm laborers working for cash 20, and that those working for a share of the crop in that State are not half as many as 10 or 15 years ago, say 10 per cent; that most of the remainder are renting. The usual share contract allows the laborer to receive one-third of the cotton and one-fourth of the corn for labor alone, or, if he feeds himself, he gets half the crop, but pays for half the fertilizer when any is used. In Tennessee, as elsewhere, the share of the laborer depends somewhat on the fertility of the land. On bottom lands, new or highly improved grounds, the owner gets half the product or a stipulated cash rent, furnishing nothing but the soil, but on lands of average productivity and condition the owner furnishes stock to work them and the seed for half the produce. For Mississippi, Arkansas, and Louisiana the share contracts are similar, varying with extent of supplies in addition to land, the cropper usually getting one-half when he feeds himself and team, which the landlord furnishes with the land. In renting a stipulated sum is paid per acre, or a certain amount of cotton, or a certain share of the crop. The white renter usually pays rent in cash; the colored renter generally contracts to pay a stipulated portion of the crop.

The tendency everywhere is toward renting land in preference to crop sharing upon small areas under dependence on the owner for advances of team, provisions, feed—everything but labor. It is a less dependent position, requires some accumulation of previous savings, and is indicative of greater prosperity, though so great is the desire for this position, having some appearance of independence, that it is often sought and entered on without adequate means, rendering necessary advances of corn or forage by the landlord, the hire of mules, or other credits. The details of these variations in dealings of landlord and tenant are practically endless; and it is to escape the most troublesome and annoying of these petty transactions that land

owners and laborers are glad to see the impecunious cropper exchanging his condition for that of an apparently less impecunious tenant.

Neither owners nor laborers are very prosperous, especially when there is surfeit of 4-cent cotton. With cotton at present prices, as it will continue to be if not reduced by excessive production, there is profit and prosperity in it for the landlord, and for the laborer if industrious and prudent. The curse of the present condition is the crop-lien system. The profits go to the bankers and merchants, who charge ruinous interest and practice oppressive exactions under the excuse of extraordinary risks. More banks will not remedy this evil, or greater facility for borrowing money on real estate, unless cheaper interest (6 per cent instead of 30 or 60) is used as a ladder to climb out of debt at once. A laborer who has only a year's supplies on hand in January is on the high road to prosperity; if he eats his bread before he earns it, he is at the mercy of sharpers. There is evidently sufficient remission of industry and prudence to perpetuate this condition of impoverishment, otherwise it would disappear in a year or two and a course of prosperity would naturally follow. Should the negro work on his Saturdays, now so generally taken for leisure, and avoid the loss of efficiency resulting for the other five days, with expenses attending the holiday, the gain would doubtless be ample in a year to provide the means of avoiding these advances for the next year. The remedy seems easy, and yet it is not easy, the chains of habit in self-indulgence are so strong. Nevertheless, industry and prudence furnish the only remedy for debt and improvidence in any country.

APPENDIX.

FARM WAGES SINCE 1892 IN COMPARISON WITH PREVIOUS YEARS.

The average wages of farm labor for the years 1893, 1894, 1895, 1898, and 1899 have been published by the Department of Agriculture in Miscellaneous Series Bulletin No. 22 of the Division of Statistics (1901), together with the figures formerly published for previous years. These figures are reproduced on the following pages. The bulletin also contains tables distinguishing between the wages of white and colored laborers and between wages by the season and wages by the entire year, and also giving the average wages of overseers or foremen and the average hours of farm labor at different seasons by States. A table showing the difference between wages with board and wages without board, by geographical divisions, reproduced in this Appendix at page 144, is of special interest as showing the influence of the Southern practice of issuing uncooked rations upon the farmer's allowance for the cost of the laborer's subsistence.

The figures given in the tables for 1866, 1869, and 1875 represent wages in currency, and to be reduced to a gold basis should be divided by 1.409 for 1866, 1.33 for 1869, and 1.149 for 1875.

The diagrams opposite page 144 show the course of farm wages in comparison with the course of farm prices. In these diagrams the farm wages for 1866, 1869, and 1875 have been reduced to a gold basis. The index numbers of the prices of farm products are computed according to the prices and weights published in the Quarterly Bulletin of the Bureau of Economic Research for July, 1900 (Comparative Prices, Freight Rates, Stock Quotations for the years 1878 to 1900, shown by Percentages or Index Numbers. Compiled under the direction of Professor John R. Commons). The prices of live stock and of animal products, as well as of cereals, hay, potatoes, cotton, and other crops are included in the averages represented in the diagram, each product being given a weight proportional to its annual production.

The diagrams show no close correspondence between farm wages and the prices of farm products, but the depression of 1893 to 1895 is seen to have been followed by a marked increase of farm wages, which in 1899 reached a higher point than in any previous year since 1869 or 1875; and, making allowance for the depreciation of currency in the former period of high wages, a point never before exceeded, so far as monthly wages are concerned, though daily wages were a little higher just after the war than at any subsequent time. It should of course be remembered that general farm-wage statistics are not available for the antebellum period, nor for all of the years since 1865.

TABLE 1.—*Wages of farm labor per month for the year or season, without board, by years and by States and Territories.*

[Wages in dollars and cents. In currency for the years 1886, 1899, and 1875.]

States and Territories.	1899.	1898.	1895.	1894.	1893.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Maine.....	26.58	25.65	26.65	24.84	26.39	24.50	25.00	24.64	23.09	24.78	18.25	25.40	26.25	27.00
New Hampshire.....	26.22	27.41	29.29	27.45	23.72	25.00	25.15	24.38	22.80	25.25	19.75	23.57	32.68	32.74
Vermont.....	27.49	26.68	27.37	23.60	25.55	24.67	24.80	23.25	23.00	23.37	19.00	29.67	32.40	32.84
Massachusetts.....	31.25	30.54	30.66	29.07	31.15	29.70	30.00	29.50	28.75	30.66	25.00	31.87	35.95	36.94
Rhode Island.....	30.56	29.71	28.71	28.75	30.58	29.00	29.20	27.75	28.50	27.75	23.00	30.00	32.25	34.40
Connecticut.....	30.28	29.02	30.47	28.94	32.32	27.38	27.00	27.40	27.67	27.90	23.29	28.25	33.00	34.25
New York.....	24.88	24.26	25.32	25.62	26.64	24.55	24.45	24.13	24.00	23.63	20.61	27.14	29.24	29.57
New Jersey.....	25.80	24.79	24.82	23.97	24.83	25.50	25.10	23.33	23.60	24.25	20.22	30.71	32.11	32.27
Pennsylvania.....	22.71	21.68	21.93	21.32	22.84	23.00	22.80	22.24	22.62	22.88	19.92	25.89	28.68	29.91
Delaware.....	18.55	18.24	18.52	18.51	19.54	18.75	17.35	18.00	18.33	18.20	17.00	20.33	22.00	24.93
Maryland.....	17.92	17.75	17.62	17.98	18.30	17.50	17.67	18.48	18.20	18.34	14.00	20.02	21.55	20.36
Virginia.....	14.82	14.41	13.88	13.86	14.40	15.50	14.21	18.32	13.95	13.90	11.00	14.84	15.28	14.82
North Carolina.....	12.39	12.10	11.59	11.73	12.56	13.30	12.53	13.41	12.85	12.86	11.19	13.46	12.76	13.46
South Carolina.....	10.06	9.96	9.91	10.18	10.96	12.50	12.10	12.25	12.00	12.10	10.25	12.63	11.54	12.00
Georgia.....	11.28	11.27	10.64	11.63	12.54	13.50	13.13	12.60	12.47	12.86	10.73	14.40	14.70	15.51
Florida.....	17.40	17.07	17.87	18.28	18.24	18.67	19.26	18.00	17.80	16.64	13.80	15.50	16.10	18.00
Alabama.....	12.56	12.00	11.76	11.68	13.05	13.75	14.00	13.59	13.00	13.15	13.20	13.00	15.19	13.40
Mississippi.....	13.17	12.81	11.61	12.07	13.54	15.40	15.38	15.03	14.60	15.10	13.31	16.40	17.11	16.72
Louisiana.....	14.88	14.57	14.06	14.70	15.96	16.25	15.98	15.37	16.05	18.20	16.40	18.40	21.37	20.50
Texas.....	17.98	17.79	17.85	17.78	18.96	18.75	19.85	19.20	18.87	20.20	18.27	19.50	18.83	19.00
Arkansas.....	15.09	14.64	14.50	15.28	16.96	17.30	18.43	18.34	17.33	18.50	17.12	20.50	25.25	24.21
Tennessee.....	14.21	13.71	13.28	13.04	14.02	14.50	14.23	14.00	13.88	13.75	12.73	15.20	16.81	19.00
West Virginia.....	19.85	19.05	18.57	17.91	19.06	19.50	19.55	18.74	19.00	19.16	16.98	20.75	21.39	25.35
Kentucky.....	16.64	16.08	15.78	15.66	16.67	17.50	16.85	16.51	16.80	18.20	15.17	18.12	18.84	20.23
Ohio.....	22.14	20.96	20.89	20.50	21.99	22.63	22.10	22.21	22.00	24.55	20.72	24.05	26.35	24.46
Michigan.....	24.12	22.32	21.97	22.84	25.13	24.00	24.90	25.20	24.00	25.76	22.88	28.22	31.01	1.26
Indiana.....	21.87	20.76	20.97	20.42	21.87	22.75	22.25	22.50	22.20	23.14	20.20	24.20	25.42	27.71
Illinois.....	24.34	23.46	23.79	23.56	24.79	24.25	23.25	23.20	23.50	23.91	20.61	25.20	27.32	28.54
Wisconsin.....	27.63	25.47	25.25	24.96	26.96	25.25	24.25	24.65	23.54	26.21	21.07	25.50	30.08	30.84
Minnesota.....	29.46	26.92	26.70	24.82	27.61	26.00	24.60	25.75	25.50	26.36	24.55	26.16	28.61	31.65
Iowa.....	27.09	25.38	25.52	25.39	27.16	26.20	25.41	25.60	25.33	26.21	22.09	24.35	28.39	28.34
Missouri.....	20.44	19.78	19.69	19.37	20.57	20.50	20.25	21.00	21.35	22.30	17.59	19.40	24.47	26.75
Kansas.....	25.24	23.96	23.14	22.13	24.00	24.20	22.75	23.25	24.70	23.65	20.67	23.20	28.96	31.03
Nebraska.....	27.40	25.80	23.40	23.55	26.27	25.75	25.50	25.59	25.00	24.45	23.04	24.00	33.25	38.37
South Dakota.....	30.58	28.22	25.65	24.73	29.17	27.00	24.75	25.85	25.55	.....	28.56	32.50	.....	30.20
North Dakota.....	32.84	30.72	29.87	29.16	33.28	30.00	.....	.....	.....	.....	.....	.....	.....	.....
Montana.....	42.78	41.13	39.76	41.48	45.17	35.00	36.50	40.00	.....	.....	.....	.....	.....	.....
Wyoming.....	42.54	40.06	39.07	39.80	43.08	34.00	34.00	37.00	.....	.....	.....	.....	.....	.....
Colorado.....	34.26	32.86	31.26	32.24	35.18	33.00	33.75	36.00	33.00	36.50	35.00	36.50	.....	67.50
New Mexico.....	25.22	25.55	27.68	24.71	27.47	27.67	27.50	28.75	28.75	.....	22.10	22.75	.....	25.00
Arizona.....	33.26	37.19	33.29	32.84	39.88	33.00	33.00	25.00	.....	.....	.....	.....	.....	.....
Utah.....	34.43	32.97	29.81	29.98	33.29	33.50	32.30	33.50	30.00	.....	23.87	25.50	.....	44.71
Nevada.....	45.10	45.18	40.71	40.19	45.33	36.00	35.00	36.00	.....	.....	.....	.....	.....	.....
Idaho.....	39.39	37.43	32.15	33.06	37.76	35.50	36.25	39.00	.....	.....	.....	.....	.....	.....
Washington.....	36.77	33.66	32.37	29.74	35.43	37.50	37.00	35.20	36.33	.....	.....	.....	.....	.....
Oregon.....	31.28	29.32	29.75	29.73	30.58	34.25	31.00	32.53	34.00	33.50	35.45	38.25	.....	35.75
California.....	36.87	35.06	33.30	33.88	39.25	36.50	35.50	36.08	36.75	38.25	41.00	44.50	46.38	45.71
Oklahoma.....	23.96	22.57	17.36	20.47	21.47	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian Territory.....	19.73	19.43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The United States.....	20.23	19.38	17.69	17.74	19.10	18.60	18.33	18.24	17.97	18.94	16.42	19.87	25.92	26.87

TABLE 2.—*Wages of farm labor per month for the year or season, with board, by years and by States and Territories.*

[Wages in dollars and cents. In currency for 1866, 1880, and 1875.]

States and Territories.	1860.	1866.	1868.	1864.	1863.	1862.	1880.	1888.	1885.	1882.	1879.	1875.	1860.	1866.
Maine	18.00	17.20	17.68	17.28	18.20	17.00	17.50	17.20	16.00	16.15	11.08	15.94	16.50	17.44
New Hampshire	18.48	18.00	18.08	17.80	18.96	17.50	17.60	17.00	15.75	16.72	12.30	18.25	22.16	22.48
Vermont	18.74	18.30	17.94	16.81	18.20	17.45	17.35	16.40	16.20	16.00	11.50	19.37	21.40	21.00
Massachusetts	18.32	17.64	17.75	17.10	18.55	18.00	18.50	18.00	17.85	18.25	15.33	20.25	22.16	22.36
Rhode Island	18.35	17.94	17.90	17.98	19.14	17.75	18.00	17.50	17.70	17.00	13.25	19.00	20.00	20.50
Connecticut	17.52	17.14	17.24	16.71	18.21	17.50	17.38	17.17	17.20	17.37	14.23	18.60	20.75	21.54
New York	17.52	17.00	17.82	18.07	18.91	16.50	16.65	16.30	16.52	15.36	13.19	17.80	18.64	19.23
New Jersey	15.19	14.79	14.56	14.41	14.74	16.75	16.00	15.73	14.10	14.20	11.53	16.78	19.02	18.98
Pennsylvania	14.32	13.56	13.06	13.03	14.19	15.00	14.60	14.50	14.12	14.21	11.46	16.10	18.05	18.84
Delaware	11.98	11.71	11.33	11.05	12.23	12.00	11.15	12.26	12.63	12.50	9.50	11.67	13.00	13.25
Maryland	11.52	11.36	11.14	11.43	11.77	11.33	11.25	11.64	11.50	9.88	8.95	11.42	12.00	12.76
Virginia	10.43	10.07	9.32	9.37	9.84	9.67	9.47	9.25	9.24	9.17	7.03	9.21	9.65	9.26
North Carolina	8.56	8.31	7.80	7.95	8.62	8.78	8.80	9.00	8.91	8.80	7.66	8.32	7.91	8.15
South Carolina	7.34	7.26	6.98	7.23	7.62	8.40	8.62	8.00	8.26	8.10	6.66	8.19	7.34	7.66
Georgia	8.05	7.96	7.43	8.22	8.99	9.00	8.37	8.81	8.73	8.70	7.33	8.79	9.70	9.67
Florida	11.32	11.07	11.02	11.63	11.67	12.27	12.59	11.33	11.37	10.20	8.73	10.75	10.91	12.12
Alabama	8.69	8.33	7.85	7.99	9.12	9.17	9.85	9.49	9.10	9.09	8.30	9.40	10.52	9.80
Mississippi	9.27	8.22	7.89	8.46	9.73	10.46	10.50	10.09	10.00	10.09	9.23	11.25	11.21	11.58
Louisiana	10.30	10.02	9.47	10.33	11.44	11.83	11.79	11.12	11.26	12.09	11.27	12.20	12.62	12.43
Texas	12.94	12.62	12.55	12.59	13.58	13.00	13.30	12.60	13.72	14.03	11.49	13.37	13.21	12.73
Arkansas	10.54	10.14	9.92	10.13	11.56	11.50	12.55	12.50	12.25	12.25	11.31	13.00	16.80	15.80
Tennessee	10.39	9.90	9.38	9.30	10.10	10.20	10.12	10.00	9.74	9.49	8.69	10.00	11.00	12.63
West Virginia	13.55	12.90	12.29	11.80	12.62	12.75	12.95	12.25	12.40	12.46	10.94	13.10	13.87	16.47
Kentucky	12.24	11.77	11.23	11.18	11.98	12.40	11.70	11.38	11.69	11.75	10.00	12.00	12.57	13.65
Ohio	15.27	14.45	14.46	14.23	15.40	15.80	15.10	15.00	15.50	16.30	13.34	16.33	16.74	18.96
Michigan	16.95	15.59	15.26	15.80	17.54	16.00	16.73	17.00	16.14	17.27	14.64	18.46	20.03	20.43
Indiana	15.45	14.67	14.88	14.59	15.69	15.00	14.73	15.30	15.30	15.65	12.76	16.14	17.03	18.72
Illinois	17.76	17.08	17.23	17.02	18.08	16.50	16.25	16.00	16.90	17.14	13.01	16.87	17.99	18.72
Wisconsin	19.20	17.50	16.92	16.74	18.58	17.00	16.75	16.80	16.78	17.90	13.81	16.45	18.47	19.67
Minnesota	19.98	18.16	17.39	16.03	18.78	17.60	16.60	17.68	16.75	17.75	15.62	16.36	17.94	21.10
Iowa	19.32	18.18	18.15	17.90	19.46	17.75	17.00	17.34	17.00	17.95	13.90	16.11	17.87	18.87
Missouri	14.57	14.10	14.08	13.71	14.56	14.20	14.00	14.20	14.50	13.95	11.84	13.15	16.38	18.08
Kansas	17.46	16.62	15.46	14.89	16.27	16.20	15.05	16.05	16.00	15.87	13.23	14.65	18.38	19.81
Nebraska	18.87	17.80	15.99	15.81	17.96	16.80	16.60	17.18	16.50	16.20	14.86	14.75	19.18	24.64
South Dakota	20.41	18.90	16.89	16.73	20.24	18.25	17.10	18.21	17.60	.....	16.57	20.50	.....	20.10
North Dakota	21.62	20.10	19.47	18.80	22.27	21.00	23.80	27.50	.....	.....	.....	.....	.....	.....
Montana	32.12	30.56	27.54	29.62	32.09	23.50	.....	.....	.....	.....	.....	.....	.....	.....
Wyoming	29.64	27.08	25.33	26.10	30.48	23.00	23.00	25.00	.....	.....	.....	.....	.....	.....
Colorado	23.23	22.12	20.90	20.79	23.42	22.00	21.00	23.00	21.23	27.06	20.00	21.14	.....	42.12
New Mexico	18.45	18.27	17.74	16.69	18.76	17.85	17.33	18.25	17.50	.....	13.80	14.25	.....	16.50
Arizona	23.23	23.76	22.18	22.47	23.12	23.00	21.50	16.00	.....	.....	.....	.....	.....	.....
Utah	25.72	24.41	21.00	21.16	24.65	22.30	21.00	22.30	21.00	.....	20.50	25.38	.....	26.32
Nevada	31.70	30.09	27.67	27.31	30.58	24.00	23.00	27.00	.....	.....	.....	.....	.....	.....
Idaho	23.12	23.00	21.88	22.40	27.28	23.50	23.50	26.25	.....	.....	.....	.....	.....	.....
Washington	25.06	22.97	17.64	19.16	24.11	25.00	24.40	25.00	23.25	.....	.....	.....	.....	.....
Oregon	22.80	21.48	16.54	17.41	21.99	23.00	22.00	23.00	21.25	24.75	23.86	25.67	.....	23.53
California	25.64	24.01	21.36	22.66	26.37	24.50	22.40	25.67	25.00	23.45	23.27	28.60	23.69	30.35
Oklahoma	16.12	15.36	13.38	13.76	14.85	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian Territory	13.32	13.06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The United States	14.07	13.43	12.08	12.16	13.29	12.54	12.45	12.36	12.34	12.41	10.43	12.72	16.55	17.45

TABLE 3.—*Wages of farm labor per day in harvest, without board, by years and by States and Territories.*

[In currency for 1880, 1890, and 1875.]

States and Territories.	1890.	1898.	1906.	1904.	1903.	1902.	1890.	1898.	1895.	1892.	1879.	1875.	1890.	1896.
Maine.....	\$1.75	\$1.69	\$1.45	\$1.40	\$1.43	\$1.72	\$1.70	\$1.65	\$1.53	\$1.52	\$1.43	\$1.99	\$2.17	\$2.02
New Hampshire.....	1.81	1.79	1.80	1.55	1.64	1.68	1.72	1.67	1.65	1.71	1.25	2.08	2.37	1.98
Vermont.....	1.74	1.68	1.61	1.69	1.90	1.70	1.68	1.65	1.68	1.75	1.29	2.28	2.46	2.32
Massachusetts.....	1.82	1.77	1.65	1.59	1.71	1.75	1.80	1.80	1.70	1.75	1.50	1.90	2.37	2.41
Rhode Island.....	1.78	1.74	1.45	1.40	1.49	1.72	1.75	1.75	1.60	1.60	1.30	2.00	2.37	2.23
Connecticut.....	1.81	1.75	1.72	1.62	1.75	1.75	1.70	1.70	1.65	1.65	1.60	2.08	2.40	2.43
New York.....	1.65	1.60	1.59	1.64	1.74	1.80	1.80	1.80	2.00	1.89	1.53	2.25	2.53	2.41
New Jersey.....	1.79	1.77	1.82	1.90	1.98	1.82	1.85	1.88	2.04	2.09	1.55	2.56	2.63	2.68
Pennsylvania.....	1.51	1.44	1.42	1.38	1.49	1.57	1.55	1.51	1.65	1.73	1.33	2.01	2.23	2.32
Delaware.....	1.80	1.27	1.27	1.23	1.38	1.15	1.30	1.40	1.88	1.60	1.37	1.63	1.87	2.09
Maryland.....	1.28	1.26	1.33	1.35	1.42	1.34	1.32	1.46	1.74	1.52	1.43	1.81	2.16	2.00
Virginia.....	1.15	1.12	1.10	1.12	1.18	1.28	1.26	1.30	1.33	1.27	1.16	1.48	1.48	1.46
North Carolina.....	.94	.93	.93	.90	.95	1.04	1.00	.98	1.15	1.20	.99	1.17	1.37	1.53
South Carolina.....	.78	.78	.71	.76	.81	.94	.93	.95	.87	1.08	.99	1.17	1.15	1.25
Georgia.....	.88	.88	.81	.84	.90	.96	1.02	.99	1.04	1.10	.98	1.29	1.24	1.48
Florida.....	.98	.95	.91	.96	.98	1.06	1.04	1.04	.99	1.12	1.02	1.00	1.25	1.12
Alabama.....	.90	.87	.80	.75	.86	.98	1.02	.97	.99	1.05	.98	1.40	1.24	1.27
Mississippi.....	.67	.85	.67	.65	.75	1.00	1.00	.97	1.00	1.23	1.00	1.40	1.56	1.65
Louisiana.....	.99	.98	.80	.85	.95	1.05	1.08	.92	.95	1.10	1.03	1.30	1.54	1.66
Texas.....	1.16	1.14	1.04	1.08	1.11	1.10	1.20	1.23	1.32	1.39	1.30	1.62	1.58	1.65
Arkansas.....	1.15	1.13	.92	.92	1.04	1.05	1.25	1.30	1.30	1.34	1.38	1.50	1.67	2.07
Tennessee.....	1.12	1.09	1.07	1.00	1.08	1.13	1.15	1.20	1.23	1.30	1.23	1.62	2.10	2.01
West Virginia.....	1.27	1.22	1.15	1.12	1.20	1.25	1.30	1.20	1.31	1.30	1.26	1.55	1.78	1.78
Kentucky.....	1.30	1.27	1.23	1.23	1.34	1.50	1.47	1.35	1.51	1.54	1.49	1.79	1.83	2.10
Ohio.....	1.48	1.41	1.33	1.32	1.44	1.55	1.50	1.53	1.75	1.79	1.51	2.05	2.15	2.20
Michigan.....	1.64	1.51	1.36	1.43	1.62	1.80	1.79	1.80	1.90	2.13	2.02	2.50	2.76	2.62
Indiana.....	1.48	1.40	1.39	1.35	1.53	1.58	1.55	1.64	1.85	1.89	1.68	2.20	2.16	2.23
Illinois.....	1.62	1.53	1.47	1.47	1.60	1.62	1.59	1.60	1.80	1.91	1.52	2.20	2.34	2.41
Wisconsin.....	1.73	1.53	1.40	1.39	1.56	1.75	1.64	1.80	1.89	2.50	2.11	2.40	2.45	2.68
Minnesota.....	2.20	1.90	1.72	1.52	1.67	2.15	1.95	2.20	2.29	2.61	2.63	2.62	2.90	2.68
Iowa.....	1.75	1.59	1.47	1.46	1.64	1.75	1.71	1.81	2.00	2.25	1.96	2.57	2.85	2.38
Missouri.....	1.83	1.29	1.27	1.23	1.38	1.40	1.35	1.43	1.62	1.59	1.47	1.75	2.30	2.15
Kansas.....	1.67	1.59	1.23	1.30	1.44	1.62	1.44	1.60	1.87	1.70	1.70	1.96	2.08	2.31
Nebraska.....	1.73	1.61	1.24	1.26	1.46	1.60	1.65	1.80	1.98	1.96	2.17	2.40	2.41	2.65
South Dakota.....	2.30	2.02	1.69	1.45	1.92	2.10	2.00	2.12	1.38	2.65	.....	2.37	.....	2.50
North Dakota.....	2.49	2.17	1.98	1.75	2.11	2.25	2.00	2.20	.....	.....	.....	.....	.....	.....
Montana.....	2.29	2.17	1.83	1.93	2.04	2.10	2.00	2.20	.....	.....	.....	.....	.....	.....
Wyoming.....	2.02	1.83	1.63	1.83	1.93	2.00	1.75	2.00	.....	.....	.....	.....	.....	.....
Colorado.....	1.77	1.68	1.54	1.55	1.69	1.80	1.65	1.87	2.05	2.21	2.06	2.33	.....	4.17
New Mexico.....	1.39	1.30	1.17	1.21	1.39	1.35	1.25	1.31	1.31	1.65	1.00	1.35	.....	1.50
Arizona.....	1.96	1.87	1.52	1.74	1.91	1.75	1.75	1.70	.....	.....	.....	.....	.....	.....
Utah.....	1.64	1.57	1.34	1.32	1.49	1.80	1.70	1.72	1.75	2.00	1.82	2.20	.....	3.42
Nevada.....	2.17	2.02	1.83	1.93	2.11	2.05	2.00	1.80	.....	.....	.....	.....	.....	.....
Idaho.....	2.00	1.86	1.56	1.52	1.75	2.00	2.00	2.00	.....	.....	.....	.....	.....	.....
Washington.....	2.13	1.96	1.46	1.55	1.87	2.20	2.10	2.10	2.05	.....	2.15	2.40	.....	3.00
Oregon.....	1.62	1.67	1.37	1.51	1.79	2.00	1.90	1.94	1.95	1.92	2.02	2.11	.....	2.40
California.....	1.96	1.85	1.75	1.92	2.08	2.25	2.10	2.25	2.20	2.30	2.27	2.50	2.52	2.56
Oklahoma.....	1.53	1.47	1.08	1.12	1.18	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian Territory.....	1.28	1.24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The United States.....	1.37	1.30	1.14	1.12	1.24	1.30	1.30	1.31	1.40	1.48	1.30	1.70	2.20	2.20

TABLE 4.—*Wages of farm labor per day in harvest, with board, by years and by States and Territories.*

[In currency for 1866, 1869, and 1875.]

States and Territories.	1869.	1868.	1865.	1864.	1863.	1862.	1860.	1858.	1855.	1852.	1879.	1875.	1869.	1866.
Maine.....	\$1.42	\$1.35	\$1.14	\$1.12	\$1.20	\$1.22	\$1.35	\$1.30	\$1.19	\$1.22	\$1.09	\$1.49	\$1.65	\$1.56
New Hampshire.....	1.42	1.39	1.21	1.16	1.29	1.29	1.39	1.37	1.32	1.35	.96	1.64	1.95	1.52
Vermont.....	1.41	1.36	1.23	1.30	1.00	1.33	1.37	1.35	1.30	1.35	.97	1.85	2.00	1.85
Massachusetts.....	1.41	1.39	1.25	1.19	1.31	1.30	1.38	1.38	1.31	1.35	1.00	1.50	1.95	1.92
Rhode Island.....	1.42	1.37	1.08	.99	1.07	1.28	1.35	1.35	1.25	1.30	.95	1.50	1.75	1.71
Connecticut.....	1.45	1.38	1.31	1.32	1.35	1.38	1.39	1.40	1.33	1.33	1.25	1.53	1.90	1.40
New York.....	1.35	1.31	1.29	1.36	1.45	1.40	1.39	1.37	1.54	1.47	1.18	1.75	1.99	1.92
New Jersey.....	1.47	1.45	1.55	1.52	1.58	1.42	1.48	1.50	1.65	1.74	1.30	2.03	2.09	2.38
Pennsylvania.....	1.20	1.13	1.14	1.08	1.19	1.20	1.18	1.13	1.20	1.30	.99	1.51	1.73	1.80
Delaware.....	1.08	1.04	1.01	1.02	1.12	.85	.95	1.10	1.52	1.25	1.00	1.41	1.50	1.62
Maryland.....	1.04	1.03	1.03	1.03	1.15	1.04	1.00	1.15	1.38	1.15	1.12	1.34	1.67	1.63
Virginia.....	.94	.91	.91	.90	.95	1.02	1.00	1.10	1.08	.99	.96	1.21	1.13	1.21
North Carolina.....	.79	.78	.74	.75	.80	.82	.80	.75	.82	.85	.76	1.00	1.04	1.17
South Carolina.....	.69	.68	.58	.65	.69	.75	.73	.72	.64	.73	.68	1.01	.90	.93
Georgia.....	.73	.73	.66	.71	.76	.76	.81	.77	.80	.80	.61	.99	.90	1.06
Florida.....	.73	.73	.70	.74	.75	.85	.80	.78	.70	.80	.73	.72	.87	.83
Alabama.....	.74	.72	.62	.64	.71	.76	.75	.72	.76	.80	.77	1.15	.95	1.04
Mississippi.....	.67	.64	.53	.62	.70	.75	.75	.73	.79	.95	.85	1.00	1.27	1.14
Louisiana.....	.81	.79	.63	.70	.79	.82	.81	.72	.75	.85	.77	1.05	1.13	1.20
Texas.....	.98	.92	.83	.86	.93	.90	.93	.96	1.04	1.08	.94	1.30	1.26	1.32
Arkansas.....	.91	.89	.78	.75	.84	.84	.93	.97	1.03	1.02	1.08	1.25	1.40	1.52
Tennessee.....	.94	.90	.87	.94	.93	.93	.91	.93	1.04	1.00	.98	1.20	1.59	1.54
West Virginia.....	.99	.94	.89	.91	.98	1.00	1.00	.82	1.03	1.00	.95	1.20	1.29	1.31
Kentucky.....	1.07	1.04	1.02	1.02	1.11	1.10	1.15	1.07	1.17	1.18	1.15	1.46	1.38	1.70
Ohio.....	1.22	1.14	1.09	1.10	1.21	1.24	1.20	1.23	1.40	1.41	1.17	1.80	1.72	1.73
Michigan.....	1.35	1.22	1.09	1.13	1.33	1.40	1.39	1.40	1.57	1.78	1.55	2.00	2.25	2.14
Indiana.....	1.28	1.14	1.14	1.14	1.29	1.28	1.25	1.32	1.55	1.58	1.28	1.75	1.77	1.76
Illinois.....	1.35	1.26	1.20	1.22	1.33	1.30	1.27	1.25	1.40	1.54	1.18	1.53	1.94	1.91
Wisconsin.....	1.40	1.22	1.11	1.12	1.27	1.38	1.30	1.44	1.57	2.10	1.70	1.92	1.96	2.15
Minnesota.....	1.84	1.55	1.46	1.24	1.56	1.70	1.51	1.75	1.89	2.16	2.25	2.30	2.36	2.27
Iowa.....	1.47	1.28	1.19	1.23	1.33	1.40	1.50	1.48	1.61	1.81	1.57	2.10	2.24	1.88
Missouri.....	1.08	1.04	1.02	1.01	1.10	1.05	1.10	1.18	1.30	1.23	1.17	1.43	1.84	1.72
Kansas.....	1.39	1.33	1.03	1.02	1.15	1.28	1.13	1.25	1.43	1.35	1.32	1.46	1.63	.82
Nebraska.....	1.38	1.27	.99	.99	1.13	1.27	1.27	1.42	1.55	1.57	1.66	1.98	2.00	2.15
South Dakota.....	1.37	1.61	1.37	1.13	1.57	1.60	1.52	1.64	1.00	2.19	.....	1.90	.....	2.00
North Dakota.....	1.99	1.63	1.60	1.40	1.73	1.70	.....	.....	.....	.....	.....	.....	.....	.....
Montana.....	1.72	1.60	1.36	1.45	1.61	1.65	1.50	1.50	.....	.....	.....	.....	.....	.....
Wyoming.....	1.53	1.39	1.36	1.45	1.57	1.55	1.30	1.30	.....	.....	.....	.....	.....	.....
Colorado.....	1.34	1.24	1.14	1.10	1.23	1.37	1.21	1.35	1.50	1.60	1.55	1.50	.....	2.37
New Mexico.....	1.05	1.02	.93	.91	1.01	1.05	.95	1.00	.88	1.40	.67	.90	.....	1.12
Arizona.....	1.55	1.57	1.24	1.30	1.54	1.25	1.25	1.30	.....	.....	.....	.....	.....	.....
Utah.....	1.36	1.29	1.05	1.07	1.22	1.43	1.27	1.30	1.36	1.56	1.43	1.75	.....	2.49
Nevada.....	1.62	1.53	1.36	1.38	1.56	1.63	1.70	1.37	.....	.....	.....	.....	.....	.....
Idaho.....	1.62	1.50	1.26	1.29	1.55	1.55	1.50	1.52	.....	.....	.....	.....	.....	.....
Washington.....	1.76	1.59	1.15	1.20	1.50	1.67	1.67	1.60	1.50	.....	1.61	2.00	.....	2.25
Oregon.....	1.47	1.34	1.10	1.13	1.42	1.55	1.45	1.45	1.50	1.50	1.54	1.72	.....	1.80
California.....	1.63	1.50	1.36	1.50	1.66	1.70	1.75	1.85	1.80	1.86	1.76	2.00	2.04	2.08
Oklahoma.....	1.22	1.16	.87	.89	.94	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian Territory.....	1.02	.98	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The United States.....	1.12	1.05	.92	.93	1.03	1.02	1.02	1.02	1.10	1.15	1.00	1.35	1.74	1.74

TABLE 5.—*Wages of ordinary farm labor per day, without board, by years and by States and Territories.*

[In currency for 1893, 1899, and 1875.]

States and Territories.	1899.	1893.	1895.	1904.	1903.	1902.	1900.	1898.	1895.	1892.	1879.	1875.	1899.	1893.
Maine	\$1.37	\$1.31	\$1.23	\$1.20	\$1.25	\$1.28	\$1.30	\$1.25	\$1.19	\$1.18	\$0.97	\$1.48	\$1.48	\$1.49
New Hampshire	1.41	1.37	1.25	1.25	1.31	1.28	1.35	1.27	1.30	1.30	.98	1.50	1.79	1.67
Vermont	1.30	1.27	1.25	1.11	1.23	1.23	1.19	1.16	1.15	1.20	.91	1.51	1.76	1.76
Massachusetts	1.49	1.46	1.37	1.38	1.41	1.42	1.45	1.42	1.50	1.45	1.05	1.44	1.92	1.83
Rhode Island	1.38	1.38	1.27	1.24	1.28	1.42	1.45	1.42	1.25	1.28	1.00	1.62	1.73	1.83
Connecticut	1.46	1.40	1.39	1.31	1.34	1.38	1.37	1.33	1.32	1.30	1.50	1.50	1.67	1.75
New York	1.26	1.23	1.19	1.20	1.27	1.22	1.23	1.21	1.23	1.29	.92	1.43	1.64	1.75
New Jersey	1.26	1.24	1.23	1.25	1.30	1.24	1.25	1.20	1.17	1.21	.99	1.45	1.69	1.68
Pennsylvania	1.15	1.09	1.04	1.00	1.09	1.10	1.09	1.10	1.10	1.20	.96	1.37	1.43	1.59
Delaware	.94	.92	.85	.87	.92	.90	.85	.95	1.00	1.10	.75	1.04	1.30	1.31
Maryland	.90	.89	.95	.85	.89	.85	.87	.90	.93	.83	.75	1.06	1.20	1.31
Virginia	.71	.69	.66	.66	.68	.72	.75	.73	.71	.70	.63	.73	.80	.83
North Carolina	.60	.58	.54	.54	.58	.63	.62	.61	.67	.68	.58	.72	.74	.72
South Carolina	.51	.50	.48	.47	.52	.63	.63	.65	.60	.65	.53	.71	.70	.69
Georgia	.59	.58	.51	.56	.60	.72	.72	.75	.66	.70	.58	.63	.68	.99
Florida	.53	.51	.50	.57	.67	.96	.92	.95	.85	.75	.76	.92	.96	1.00
Alabama	.62	.60	.59	.54	.62	.72	.74	.72	.73	.72	.69	.73	.86	.73
Mississippi	.70	.68	.52	.55	.64	.80	.79	.75	.80	.75	.78	1.07	1.10	1.34
Louisiana	.78	.77	.68	.72	.80	.87	.88	.95	.82	.80	.85	1.03	1.44	1.08
Texas	.90	.89	.81	.84	.90	.98	.97	.95	.98	.93	.92	1.14	1.16	1.31
Arkansas	.78	.76	.64	.63	.73	.87	.92	.89	.88	.86	.86	1.10	1.26	1.34
Tennessee	.71	.67	.60	.60	.64	.71	.71	.74	.71	.72	.69	.93	1.05	1.15
West Virginia	.90	.86	.80	.77	.82	.90	.90	.85	.83	.82	.80	1.06	1.14	1.31
Kentucky	.73	.76	.68	.71	.76	.85	.88	.82	.84	.87	.77	1.03	1.10	1.21
Ohio	1.16	1.09	1.00	.98	1.07	1.10	1.05	1.07	1.11	1.19	1.00	1.35	1.44	1.54
Michigan	1.23	1.15	1.00	1.04	1.19	1.20	1.19	1.20	1.28	1.30	1.16	1.55	1.66	1.73
Indiana	1.07	1.01	.95	.92	1.01	1.06	1.05	1.10	1.08	1.06	.90	1.30	1.36	1.45
Illinois	1.22	1.16	1.07	1.06	1.14	1.14	1.13	1.12	1.14	1.19	1.01	1.37	1.50	1.62
Wisconsin	1.39	1.24	1.11	1.11	1.24	1.30	1.26	1.22	1.20	1.33	1.12	1.42	1.56	1.73
Minnesota	1.55	1.36	1.29	1.09	1.23	1.40	1.28	1.30	1.25	1.37	1.27	1.50	1.64	1.75
Iowa	1.40	1.27	1.17	1.17	1.29	1.25	1.23	1.27	1.31	1.34	1.12	1.38	1.52	1.62
Missouri	.94	.90	.85	.82	.89	.93	.91	.94	.95	1.00	.67	1.07	1.44	1.44
Kansas	1.27	1.20	1.02	.97	1.10	1.15	1.10	1.17	1.20	1.12	1.05	1.30	1.56	1.65
Nebraska	1.40	1.31	1.02	1.03	1.20	1.26	1.28	1.37	1.35	1.21	1.29	1.43	1.62	1.93
South Dakota	1.69	1.49	1.22	1.11	1.42	1.45	1.40	1.35	1.31	1.50	1.34	1.62	.....	2.00
North Dakota	1.65	1.49	1.41	1.27	1.46	1.60	1.65	1.70	.....	.....	.....	.....	.....	.....
Montana	1.99	1.66	1.59	1.64	1.76	1.65	1.65	1.70	.....	.....	.....	.....	.....	.....
Wyoming	1.81	1.64	1.41	1.48	1.56	1.55	1.45	1.50	.....	.....	.....	.....	.....	.....
Colorado	1.53	1.46	1.34	1.26	1.39	1.50	1.43	1.60	1.55	1.63	1.83	1.75	.....	3.29
New Mexico	1.12	1.10	.97	.97	1.11	1.25	1.35	1.35	1.25	1.28	.81	.85	.....	1.00
Arizona	1.57	1.50	1.36	1.14	1.37	1.50	1.58	1.25	.....	.....	.....	.....	.....	.....
Utah	1.45	1.39	1.18	1.14	1.23	1.40	1.38	1.42	1.52	1.57	1.46	1.80	.....	2.27
Nevada	1.51	1.67	1.53	1.44	1.60	1.60	1.63	1.65	.....	.....	.....	.....	.....	3.00
Idaho	1.05	1.57	1.30	1.31	1.54	1.60	1.63	1.50	.....	.....	.....	.....	.....	.....
Washington	1.62	1.46	1.14	1.21	1.51	1.70	1.60	1.45	1.70	.....	.....	.....	.....	.....
Oregon	1.35	1.24	1.00	1.05	1.29	1.55	1.38	1.35	1.30	1.33	1.44	1.47	.....	1.75
California	1.51	1.42	1.29	1.38	1.47	1.60	1.55	1.60	1.57	1.71	1.65	1.84	2.13	2.26
Oklahoma	1.12	1.05	.71	.91	.93	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian Territory	.92	.90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The United States.	1.01	.96	.81	.81	.89	.92	.92	.92	.91	.93	.81	1.06	1.41	1.49

TABLE 6.—Wages of ordinary farm labor per day, with board, by years and by States and Territories.

[In currency for 1866, 1880, and 1875.]

States and Territories.	1866.	1868.	1869.	1874.	1880.	1882.	1880.	1883.	1885.	1882.	1879.	1875.	1869.	1866.
Maine.....	\$1.08	\$0.98	\$0.93	\$0.95	\$1.00	\$0.98	\$0.98	\$0.92	\$0.88	\$0.91	\$0.72	\$1.05	\$1.05	\$1.13
New Hampshire.....	1.05	1.09	.95	.97	1.02	.98	1.00	.95	.95	.97	.74	1.12	1.41	1.26
Vermont.....	1.00	.97	.94	.97	1.05	.94	.92	.90	.88	.90	.64	1.11	1.28	1.32
Massachusetts.....	1.08	1.05	1.00	.99	1.08	.98	1.00	1.00	1.00	1.08	.75	1.12	1.37	1.38
Rhode Island.....	1.00	.99	.89	.88	.91	.98	1.02	1.02	.94	1.00	.80	1.18	1.18	1.33
Connecticut.....	1.08	1.02	.98	.97	.99	.97	1.00	1.00	1.00	.98	.88	1.16	1.37	1.29
New York.....	.98	.94	.91	.93	.99	.90	.90	.90	.92	.93	.89	1.08	1.19	1.23
New Jersey.....	.95	.95	.95	.93	.98	.92	.92	.87	.83	.86	.89	1.00	1.15	1.20
Pennsylvania.....	.84	.80	.78	.74	.81	.81	.81	.82	.80	.86	.63	.96	1.04	1.10
Delaware.....	.68	.65	.66	.69	.71	.60	.63	.70	.78	.80	.50	.70	.95	.94
Maryland.....	.64	.63	.63	.60	.64	.61	.61	.64	.62	.55	.43	.71	.77	.95
Virginia.....	.51	.49	.49	.47	.49	.50	.52	.51	.49	.48	.44	.61	.55	.57
North Carolina.....	.46	.44	.41	.43	.46	.45	.46	.45	.47	.46	.41	.61	.49	.50
South Carolina.....	.42	.42	.36	.41	.44	.45	.45	.45	.45	.45	.41	.55	.50	.45
Georgia.....	.46	.46	.40	.45	.49	.52	.50	.50	.47	.49	.44	.60	.60	.70
Florida.....	.60	.59	.60	.70	.71	.72	.68	.70	.60	.55	.53	.70	.72	.74
Alabama.....	.48	.46	.41	.44	.51	.52	.55	.53	.52	.51	.60	.58	.61	.55
Mississippi.....	.58	.51	.43	.45	.52	.56	.60	.55	.60	.55	.55	.80	.90	.89
Louisiana.....	.60	.58	.54	.56	.62	.65	.67	.65	.64	.60	.53	.74	.83	.70
Texas.....	.68	.67	.63	.67	.72	.72	.73	.71	.76	.70	.65	.84	.84	.93
Arkansas.....	.57	.55	.50	.49	.56	.60	.65	.65	.64	.62	.60	.80	1.02	.85
Tennessee.....	.54	.52	.47	.47	.51	.53	.53	.53	.52	.50	.60	.60	.68	.83
West Virginia.....	.65	.60	.57	.57	.62	.63	.68	.62	.60	.59	.55	.75	.77	.92
Kentucky.....	.60	.58	.53	.55	.59	.62	.67	.60	.59	.60	.53	.72	.79	.86
Ohio.....	.90	.84	.78	.77	.85	.85	.83	.82	.85	.89	.83	1.00	1.05	1.13
Michigan.....	.97	.85	.76	.79	.93	.88	.88	.90	.92	.96	.82	1.10	1.17	1.30
Indiana.....	.84	.77	.74	.73	.81	.76	.78	.82	.80	.78	.69	.96	1.01	1.06
Illinois.....	.97	.91	.86	.84	.91	.88	.86	.84	.87	.90	.73	1.01	1.13	1.21
Wisconsin.....	1.08	.93	.84	.85	.96	.88	.87	.97	.95	.99	.79	1.00	1.15	1.23
Minnesota.....	1.18	1.01	1.00	.84	1.02	1.00	.98	1.00	.99	1.02	.94	1.07	1.18	1.35
Iowa.....	1.11	.99	.93	.88	1.00	.95	.95	.97	.97	.99	.80	1.01	1.13	1.19
Missouri.....	.71	.67	.65	.62	.68	.76	.75	.80	.68	.70	.69	.73	1.02	1.07
Kansas.....	.93	.91	.79	.74	.85	.83	.78	.85	.87	.80	.72	.90	1.12	1.19
Nebraska.....	1.08	1.01	.80	.78	.93	.98	.94	1.00	.97	.91	.90	1.00	1.26	1.45
South Dakota.....	1.26	1.11	.96	.81	1.11	1.03	1.04	1.10	1.08	1.11	.92	1.08	.....	1.50
North Dakota.....	1.18	1.04	1.03	.94	1.13	1.20	1.20	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Montana.....	1.41	1.23	1.12	1.19	1.29	1.35	1.45	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Wyoming.....	1.33	1.19	1.08	1.14	1.18	1.25	1.12	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Colorado.....	1.12	1.05	.97	.89	1.00	1.10	1.05	1.12	1.10	1.14	1.19	1.16	.....	1.93
New Mexico.....	.75	.76	.75	.78	.85	.87	1.00	1.00	.81	1.00	.56	.50	.....	.90
Arizona.....	1.21	1.12	1.01	.89	1.02	1.15	1.20	.90	1.14	1.10	1.12	1.40	.....	1.63
Utah.....	1.22	1.10	.90	.92	1.06	1.08	1.05	1.10	1.14	1.10	1.12	1.40	.....	1.63
Nevada.....	1.27	1.19	.93	.98	1.14	1.17	1.18	1.20	1.14	1.10	1.12	1.40	.....	2.50
Idaho.....	1.21	1.14	.92	.93	1.14	1.18	1.45	1.15	1.14	1.10	1.12	1.40	.....	2.50
Washington.....	1.17	1.07	.80	.88	1.08	1.38	1.27	1.15	1.17	1.10	1.08	1.15	.....	1.40
Oregon.....	1.00	.93	.72	.76	.98	1.06	1.03	.98	.96	1.00	1.08	1.15	.....	1.40
California.....	1.10	1.03	.89	.97	1.05	1.17	1.15	1.18	1.15	1.20	1.23	1.30	1.50	1.72
Oklahoma.....	.87	.81	.59	.66	.71	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian Territory.....	.69	.67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
The United States..	.77	.72	.62	.63	.66	.67	.68	.67	.67	.67	.69	.78	1.02	1.06

TABLE 7.—*Wages of farm labor per month, by year or season, without board and with board, by years and by geographical divisions.*¹

WITHOUT BOARD.

[Wages in dollars and cents. In currency for 1866, 1899, and 1875.]

Geographical divisions.	1899.	1898.	1895.	1894.	1893.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Eastern States.....	28.76	27.87	29.00	27.02	29.07	26.48	26.64	26.03	25.30	26.55	21.86	29.00	32.08	33.31
Middle States.....	23.91	23.15	23.80	23.64	24.82	23.83	23.62	23.11	23.19	23.21	20.24	26.99	29.19	29.83
Southern States.....	13.80	13.49	12.71	13.04	14.07	14.86	14.77	14.54	14.27	14.67	12.65	15.28	16.49	16.63
Western States.....	23.75	22.44	21.82	21.50	23.12	22.61	22.01	22.23	22.27	23.28	19.81	23.84	26.39	27.84
Mountain States.....	35.15	33.95	30.04	29.95	33.97	32.16	31.94	33.37	30.24	36.50	.....	.....	27.24	.....
Pacific States.....	35.09	33.64	31.68	34.15	36.95	36.15	34.87	36.73	37.78	37.22	40.11	49.98	61.60	62.84
The United States..	20.23	19.38	17.69	17.74	19.10	18.90	18.33	18.24	17.97	18.94	16.42	19.87	25.92	26.87

WITH BOARD.

Geographical divisions.	1899.	1898.	1895.	1894.	1893.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Eastern States.....	18.21	17.63	17.73	17.15	18.45	17.50	17.71	17.21	16.70	16.92	13.03	18.59	20.44	20.83
Middle States.....	15.93	15.39	15.73	15.60	16.51	15.73	15.61	15.41	15.24	14.71	12.37	16.98	18.37	19.01
Southern States.....	9.70	9.45	8.69	9.04	9.92	10.02	10.10	9.90	9.90	9.92	8.49	9.94	10.59	10.75
Western States.....	16.70	15.75	15.21	14.96	16.29	15.36	15.00	15.09	15.20	15.60	12.75	15.44	17.04	27.84
Mountain States.....	25.10	23.94	19.87	19.94	23.37	21.28	20.64	21.99	19.74	27.08	.....	.....	17.61	.....
Pacific States.....	24.97	23.30	20.54	22.60	25.63	24.25	23.50	25.08	24.87	23.73	25.88	32.32	38.16	41.54
The United States..	14.07	13.43	12.02	12.16	13.29	12.54	12.45	12.36	12.84	12.41	10.43	12.72	16.55	17.45

¹The geographical divisions adopted by the Department of Agriculture are composed as follows: Eastern States—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut; Middle States—New York, New Jersey, Pennsylvania, Delaware; Southern States—Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Oklahoma, Indian Territory, Arkansas, Tennessee; Western States—West Virginia, Kentucky, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, South Dakota, North Dakota; Mountain States—Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho; Pacific States—Washington, Oregon, California.

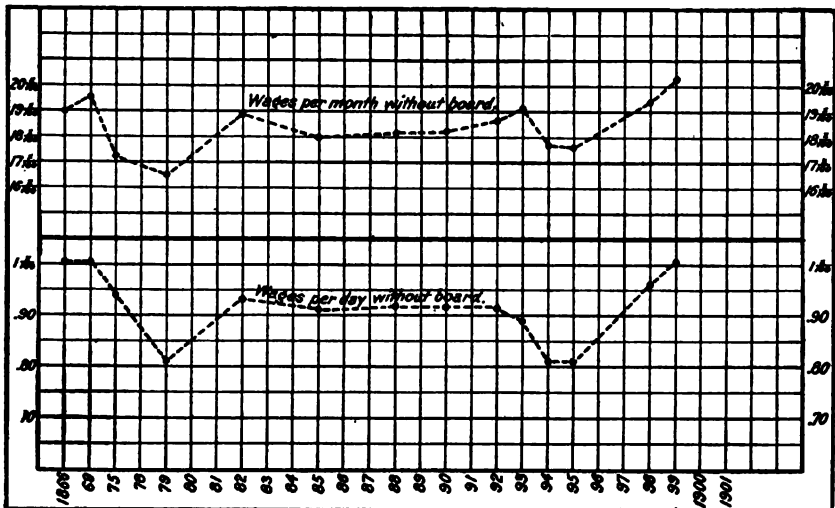
TABLE 12.—*Difference between farm wages without board and farm wages with board, per month, for year or season, by years and by geographical divisions.*

[Wages in dollars and cents. In currency for 1866, 1899, and 1875.]

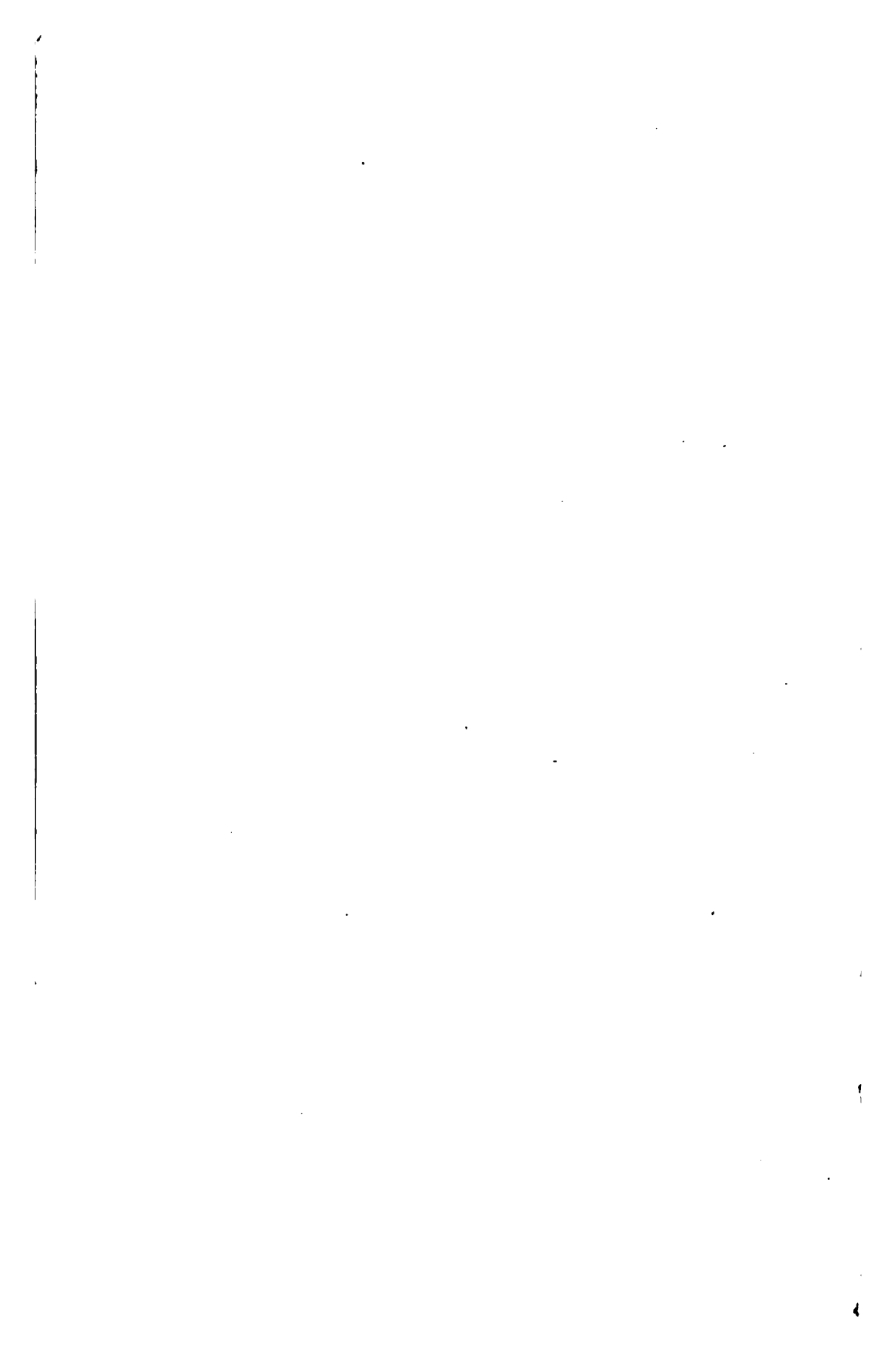
Geographical divisions.	1899.	1898.	1895.	1894.	1893.	1892.	1890.	1888.	1885.	1882.	1879.	1875.	1869.	1866.
Eastern States.....	10.55	10.24	11.27	9.87	10.62	8.98	8.98	8.82	8.60	9.63	8.23	10.41	11.59	12.48
Middle States.....	7.98	7.82	8.07	8.04	8.81	8.05	8.01	7.70	7.95	8.50	7.87	10.01	10.82	10.82
Southern States.....	4.10	4.04	4.08	4.00	4.15	4.84	4.67	4.64	4.37	4.75	4.19	5.34	5.94	5.88
Western States.....	7.05	6.69	6.61	6.54	6.83	7.25	7.01	7.14	7.07	7.66	7.03	7.80	9.35	.....
Mountain States.....	10.05	10.01	10.17	10.01	10.60	10.88	11.30	11.38	10.50	9.42	.....	.....	9.63	.....
Pacific States.....	10.72	10.34	11.14	11.55	11.82	11.90	12.37	11.65	13.41	13.49	14.23	17.66	23.53	21.80
The United States..	6.16	5.95	5.67	5.58	5.81	6.06	5.88	5.88	5.63	6.53	5.99	7.15	9.37	9.43



FARM PRICES.

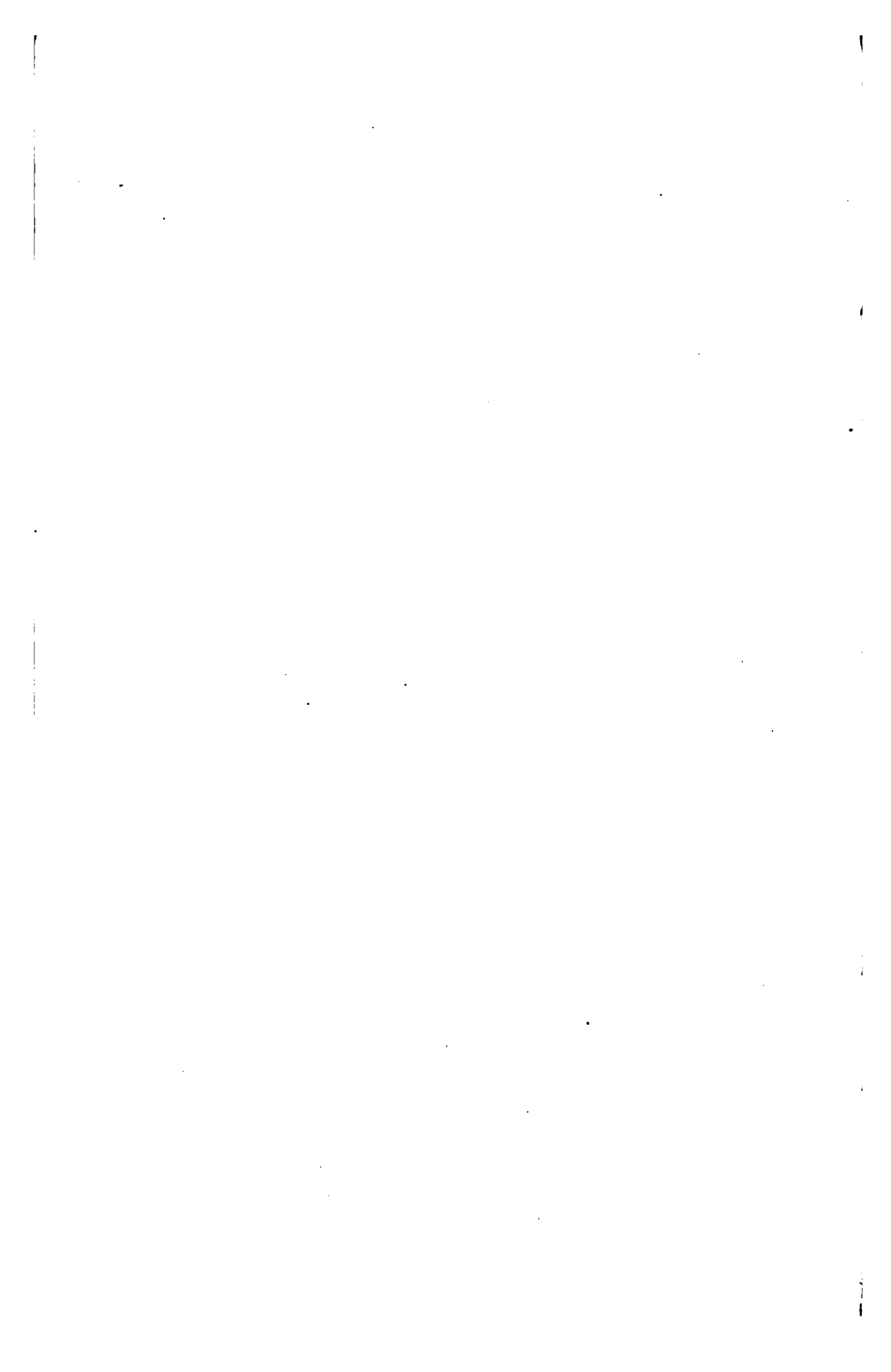


FARM WAGES.



PART IV.

**DIGEST OF LAWS OF THE SEVERAL STATES RELATING TO BOARDS AND
DEPARTMENTS OF AGRICULTURE, FARMERS' INSTITUTES,
AND PROTECTION OF AGRICULTURAL AND
HORTICULTURAL INDUSTRY.**



INTRODUCTION.

Organizations for the promotion of agriculture, maintained either in whole or in part by the State governments, are found in nearly every State in the Union. State Boards of Agriculture, the most common form of organization for that purpose established by law and maintained at public expense, are found in about half the States. The other typical form is a Department or Bureau of Agriculture, presided over by a single officer, usually designated as Commissioner of Agriculture. In several cases, however, this office combines a number of functions, and his bureau is known as the Bureau of Agriculture and Immigration; the Bureau of Agriculture, Labor, and Industry; the Bureau of Agriculture, Statistics, and Mines, or the like. These commissioners are found chiefly in the South, but also in Maine, New York, and North Dakota, while in Pennsylvania there is a department of the State government presided over by a Secretary of Agriculture. Finally, in Wisconsin, Minnesota, and Iowa the place of a Board of Agriculture is filled to a greater or less extent by the executive committee or board of directors or managers of the State Agricultural Society; and in Utah a similar arrangement is in effect with the directors of the Deseret Agricultural and Manufacturing Society.

The two principal modes of designating the members of State Boards of Agriculture are election by State and local agricultural societies or their delegates, and appointment by the Governor, usually subject to confirmation by the upper house of the legislature. In some States the two methods are combined, a part of the members being appointed by the executive and a part chosen by agricultural societies. It is common also for certain officials to be designated members of the board ex officio, the Governor and the president of the State agricultural college being often so designated. In a few States the members of the State board are elected at annual meetings by delegates from local societies, who are declared to be for the time being ex officio members of the board itself, while in New Jersey all the members of all the agricultural and horticultural societies, farmers' clubs, and granges in the State are declared to be members of the State Board of Agriculture. In several cases the members of the Boards of Agriculture are required to be appointed from more than one political party. The Commissioners of Agriculture in some States are elected by the people like other State officers; in other cases they are appointed by the executive.

The members of the State Boards of Agriculture commonly serve without compensation, other than the expenses incident upon attending the meetings and performing their official duties. The actual executive work is usually in charge of a salaried secretary chosen by the board, in some instances from its own number. The functions of this officer therefore correspond somewhat closely to those of the Commissioner of Agriculture in States having such officials. In some States there is both a State Board of Agriculture and a Commissioner of Agriculture who acts as its executive officer; while in Kentucky the Commissioner of Agriculture, Labor, and Statistics is assisted by an advisory board.

While it is sufficiently correct to say that all these Boards and Departments or Bureaus of Agriculture have been created for the purpose of promoting agricultural and kindred interests, there is a wide variation in the specific duties assigned to them in different States. In most cases, however, they are charged, among other things, with the collection of agricultural statistics, or other information relating to agriculture, or both, to be included in their published reports. In certain other States the collection of agricultural statistics is made a part of the work of a statistical bureau independent of the Board or Commissioner of Agriculture, and in some cases it is made a duty of more than one authority.

Many of the Boards and Commissioners of Agriculture are directed to encourage the formation of local agricultural societies, and in some cases they are authorized also to make rules and regulations for the organization and government of such societies, and to require reports from them at stated intervals.

In several Western States the State Board of Agriculture is an outgrowth of a State Agricultural Society, the officers of the society having at some time been constituted a State Board. In these cases the State Agricultural Society continues its existence,

but is under the control of the board. In these cases, and also in several other Western States, the State board has charge of the annual State fair, while in Washington the body corresponding most closely to a Board of Agriculture is the State Fair Commission, and a similar commission has recently been created in New York. In a majority of the States, however, the holding of fairs is left to the voluntary action of State and local agricultural societies, though in many cases appropriations are made from the public funds, either State or county, or both, to aid in the payment of premiums, etc.

The gratuitous distribution of rare and valuable seeds, plants, etc., including seeds obtained for that purpose from the United States Department of Agriculture, is made a duty of the Boards or Commissioners of Agriculture in several States. In some cases the seeds and plants are to be given only to persons who will agree to cultivate them properly and report the results.

The encouragement of immigration is made a function of these officials in a number of States where immigration is desired, chiefly in the South and West, and in some cases this function carries with it the duty of preparing State handbooks or other printed matter setting forth the resources and advantages of the State. In some Southern States the commissioner is directed to keep a record of lands for sale within the State, corresponding to the lists of abandoned farms published by New England Boards of Agriculture; while in one or two cases provision is made for a public employment registry for the benefit of immigrants and others and the convenience of employers, corresponding to the employment bureaus established in other States under the Bureaus of Labor.

In a number of Southern States the Commissioner of Agriculture has charge of a geological survey of the State, or has under his direction a geologist engaged in the analysis of soils, etc.; and in some cases he is directed to keep at his office a museum or cabinet containing specimens of the various products of the State.

In a few cases the State Board of Agriculture has been made the governing body of the State agricultural college, while in South Carolina this process has been reversed, the usual functions of a Board of Agriculture being assigned to the trustees of Clemson College. In several other States the Board or Commissioner of Agriculture has some supervisory powers in connection with the agricultural college and experiment station, extending in some cases to the State weather service also, or to other State institutions for the benefit of agriculture.

Certain functions which are in some States assigned to the Board or Commissioner of Agriculture are in other States assigned to the officers of the experiment station or to an independent official or board. Among these functions may be mentioned the holding of farmers' institutes, the suppression of insect pests and of contagious diseases among animals, and the inspection and control of commercial fertilizers, and, in a few States, of commercial feeding stuffs. Still other duties, as, for example, in connection with forestry, fish culture, or other interests, are assigned to the Board or Commissioner of Agriculture in isolated cases.

Farmers' institutes.—Farmers' institutes are now held in a majority of the States, usually under the direction of the Board or Commissioner of Agriculture or of the agricultural college or experiment station, but in some cases under the management of a superintendent of farmers' institutes appointed solely for that purpose. There is much variation in the plan of organization of the institutes, their control being much more centralized in some States than in others. The plan which has been most generally adopted seems to be some form of cooperation between the State officials and the local organizations under whose auspices the institutes are held, part of the speakers being lecturers engaged to travel from point to point and paid from the State treasury, and others being local volunteers.

Diseases of animals and insect pests.—All the States have statutes, more or less elaborate, intended to prevent the spread of contagious diseases among domestic animals, and in most cases there are also provisions for the suppression of insect pests, especially on fruit trees and vines. The administration of the laws against injurious insects is in a few States intrusted to a State Board of Horticulture, or, in the case of Washington, to a Commissioner of Horticulture. In other States this duty is performed by a Board of Entomology or by a State Entomologist connected with the experiment station or with the State Department or Bureau of Agriculture. In some cases local inspectors are appointed by the central authority; in other cases the county supervisors appoint local inspectors. The control of diseases among animals is often intrusted to a Live-stock Sanitary Board, the State Board of Health, or a State Veterinarian acting under the direction of some such board or of the Commissioner or Board of Agriculture. In cases where it is necessary to destroy animals to prevent the spread of disease some compensation to the owner is commonly provided for. This is sometimes limited to one-half or three-fourths of the value of the animal, or to a

fixed sum for animals of a stated kind. In some cases it is provided that no compensation shall be paid for an animal which was diseased when brought into the State, or which was brought into the State without the certificate of health required by law.

In several cases special provisions are made to prevent the spread of foul brood among bees.

Commercial fertilizers.—A majority of the States, including nearly all of those east of the Mississippi, have statutes governing the sale of commercial fertilizers. The administration of the law is commonly intrusted to the director of the experiment station or to the Commissioner of Agriculture or corresponding official. The actual analysis of samples by means of which the statements of manufacturers are verified is conducted by a chemist, who is usually connected with the experiment station or with the State Department of Agriculture.

Commercial feeding stuffs, etc.—Several States have statute provisions intended to prevent the adulteration of commercial feeding stuffs, and in a few cases there is also a provision prescribing a required strength for paris green, and sometimes of other insecticides.

Beet sugar bounties, etc.—Several States, including Kansas, Montana, New York, and Washington, offer bounties on sugar manufactured from beets grown within the State under certain conditions. In some other States where sugar bounties have been offered for limited periods the bounty is no longer in force. In Michigan the sugar-bounty law was declared unconstitutional by the State Supreme Court in 1900 on the ground that it authorized taxation for a private purpose. The usual amount of the bounty is 1 cent a pound, but in Kansas it is three-fourths of a cent a pound. Minnesota and Wisconsin encourage the sugar-beet industry by providing for the importation and distribution of sugar-beet seed. In some commonwealths—e. g. Arizona, Wisconsin, and Wyoming—the industry is encouraged by exempting beet-sugar factories from taxation.

DIGEST OF LAWS BY STATES.

ALABAMA.

DEPARTMENT OF AGRICULTURE.

A Department of Agriculture is established under the management of a Commissioner of Agriculture, who must be a practical and experienced agriculturist. (Civil Code, sec. 368.) The commissioner holds office for two years and receives an annual salary of \$2,100; he must give bond in the sum of \$5,000. He is required to appoint a chief clerk and an assistant clerk. The chief clerk's duties are prescribed.

Powers and duties.—The law prescribes the duties of the Commissioner of Agriculture under twenty sections, covering the encouragement of profitable development of agriculture, horticulture, and kindred industries, the organization of agricultural associations, etc., reports, investigation of means of eradication of diseases of animals, fruit pests, etc., the subjects of grasses, dairying industry, stock, poultry, and fish, fencing, sub-soil drainage and irrigation, culture of wool and silk, to aid immigration, to make rules and regulations with reference to the sale of fertilizers, etc. (Civil Code 1896, secs. 368–376.)

FARMERS' INSTITUTES.

The commissioner is required to conduct farmers' institutes in different sections of the State and to report upon the same. (Civil Code, 1896, sec. 416.)

DISEASES OF ANIMALS.

The law provides for the destruction of any animal found to be abandoned, and in the judgment of two reputable citizens, found to be infirm, glandered, injured, or diseased past recovery. (Civil Code, sec. 422.)

The law provides that it is the duty of any person owning a horse, mule, or other animal having glanders or other fatal contagious or infectious disease to keep such animal removed from the public, and isolated from other animals, and further provides a penalty for violation. (Act approved Feb. 28, 1887.)

It is unlawful for any person to allow a dog belonging to him, which has become rabid, to run at large. (Laws of 1895, No. 373.)

HORTICULTURE.

The law provides that it is the duty of the Commissioner of Agriculture, when informed of the existence of disease among fruit trees, etc., to cause a sample of such diseased tree to be sent to him or to some of the agricultural experiment stations in the State for examination, and a written report must be furnished to him regarding the same.

The owner of diseased trees is required to destroy them. (Laws of 1897, No. 502.)

FERTILIZERS.

The law provides that commercial fertilizers can not be sold without license from the Commissioner of Agriculture. The commissioner is required to issue a license to sell fertilizers on payment of a fee of \$1, which license is good during the season.

The law provides that dealers must attach tags procured from the Commissioner of Agriculture to all packages of fertilizers.

It is unlawful to include the tag tax in the price of fertilizer sold.

The law provides that a person offering fertilizer for sale must submit to the commissioner a statement showing the brand, number of pounds in each package, name of manufacturer and place of manufacture, and the ingredients he is willing to guarantee.

Each package of fertilizer must have attached a true analysis and its commercial value.

The professor of chemistry of the Agricultural and Mechanical College is made chemist of the Department of Agriculture for the purpose of analyzing fertilizers. (Civil Code, 1896, secs. 378, 379, 386, 387, 390, 391, 392, 393.)

ARIZONA.

DISEASES OF ANIMALS.

The law provides that a Live Stock Sanitary Board consisting of three members shall be appointed by the Governor, with the advice and consent of the Legislative Council, and requires that each member must give a bond. The term of office is 3 years. The salary of the members is \$5 a day for the time employed. The Governor is authorized to appoint a Territorial Veterinary Surgeon, whose term of office shall be 2 years. His salary is fixed at \$1,200 per annum and 10 cents a mile for traveling expenses. He is required to give bond.

Persons owning or in charge of domestic animals who have reason to believe such animals are affected with contagious diseases must notify the board or the veterinarian. The duties of the board are to protect the health of domestic animals, and it is authorized to establish and maintain quarantines, etc. The board may require the slaughtering of diseased animals. The slaughtering and disposition of the remains of diseased animals are under the regulations of the Territorial Veterinarian. It is a misdemeanor to violate quarantine laws, and it is unlawful to sell or ship diseased animals, or the meat, milk, or hides of such diseased animals.

The law provides that the Governor shall issue a proclamation prohibiting the importation of live stock into the Territory, if disease exists outside of the Territory, unless accompanied by a bill of health.

The law provides that it is the duty of the board to appoint inspectors to protect live stock from theft, and it is required to devise a system of inspection for health, marks, and brands of all stock exported from and all stock slaughtered in the Territory.

It is unlawful to convey cattle within the Territory between the 1st day of February and December which are capable of communicating Texas, splenic, or Spanish fever. Transportation companies are prohibited from transporting any such cattle into the Territory. Provision is made for the quarantine of cattle having Texas fever, and they can not be received until so ordered by the board.

The law provides for a proper supervision of slaughtering places, covers the sanitary condition of such places, keeping of records, etc. It is unlawful to transport untagged hides.

The law provides for the proper branding of animals. (Laws of 1897, No. 6, consolidating the live-stock laws.)

HORTICULTURE.

The law provides that upon petition to the board of supervisors of any county, by 10 or more residents, that the supervisors shall appoint a commission, whose duty it shall be to supervise the destruction of insects injurious to fruits and vines, such as scale insects, codling moth, and other pests, and they shall be known as the board of horticultural commissioners. The powers of said commission are given. If persons own infected orchards, etc., and do not destroy or take means to eradicate the pests, such properties may be deemed a public nuisance and may be proceeded against as such, and if found guilty the court may direct the aforesaid commission to abate the nuisance. The expense thus incurred may be a lien upon the real property of the defendant. The commission has power to quarantine trees or fruits that are infested, etc.

The commissioners must keep a record of their official doings, and are required to report to the county board of supervisors on or before the 1st of January of each year on the condition of the fruit interests of their several districts. (Laws of 1891, No. 28.)

BEES.

The law provides that a foul-brood inspector may be appointed in any county by the board of supervisors, upon a petition signed by not less than 10 persons, residents of said county; the persons so appointed shall serve for a term of 2 years, unless removed by the board of supervisors.

It is the duty of the inspector to examine any apiary suspected of having foul brood, and if the disease is found to exist, he shall also inspect all other apiaries within 2 miles.

Provision is made for the destruction of colonies of bees so diseased. The owner is allowed to ask for a committee of inspection, composed of honey producers, one to be chosen by the owner, one by the inspector, and the third by these two. They shall examine the disputed cases, and shall then decide whether the said colony or colonies are diseased or not, and their decision shall be final.

The inspector shall make an annual report to the board of supervisors on the 1st day of January of each year, giving in detail the number and location of apiaries inspected and the number of diseased colonies found and destroyed. (Laws of 1899, No. 26.)

BET-SUGAR FACTORIES.

The law provides that any association or corporation organized under the laws of the Territory of Arizona which shall build a productive plant for the manufacture of sugar from beets, etc., shall be exempt from taxation of every kind for a period of 10 years after the completion of said plant, subject to certain conditions and restrictions. Any association to avail itself of the provisions of this act must, within 1 year after the passage of the same, file with the chairman of the board of supervisors of each county in which said plant is located a notice in writing that it accepts the conditions of the act, etc.; provided, such association or corporation shall not be allowed more than 10 acres of land to be exempt from taxation.

All plants built under the provision of this act and claiming exemptions herein provided for shall be completed and in operation at the point as located within 5 years from the date of filing the notice provided for in this act. (Laws of 1891, no 73.)

ARKANSAS.

BUREAU OF MINES, MANUFACTURES, AND AGRICULTURE.

The law provides for the establishment of a department to be known as the "Arkansas Bureau of Mines, Manufactures, and Agriculture," under the direction of a commissioner. The commissioner is elected by the people, holds office for 2 years, and receives an annual salary of \$1,800. He is required to give bond in the sum of \$10,000. The duties of the commissioner are very fully given. (Sandels & Hill's Digest, secs. 5063-5072, chap. 109.)

LOCAL AGRICULTURAL SOCIETIES.

Agricultural fair associations are authorized to be incorporated and the shares of stock may be of the par value of \$2 each. (Sandels & Hill's Digest, sec. 1422.)

DISEASES OF ANIMALS.

Cattle must not be driven across quarantine lines established by the United States authorities. (Laws of Apr. 19, 1895.)

The law prohibits the importation of any diseased horse, mule, jack, or jennet affected by any contagious or infectious disease, and also the driving on a highway or selling of any such animals.

The law prohibits any person bringing into the State Western horses, mules, or jacks that have not been kept at least twelve months north of the north boundary of Missouri, or twelve months east of the west boundary line of Iowa; provided nothing shall prevent transportation through the State, or driving across the State, between April 1 and July 10; but this does not apply to settlers bringing their horses with them.

The Commissioner of Mines, Manufactures, and Agriculture is authorized to extend or limit the operation of this act under certain conditions. (Laws of Feb. 5, 1897.)

The law provides for the establishment of a district cattle quarantine line and defines the boundaries.

It is unlawful to transport cattle across the boundary line except from December 15 to March 1. Cattle in cars are exempted. Penalties are prescribed for violation. (Laws of 1899, No. 45.)

FERTILIZERS.

The law provides that before any fertilizer shall be offered for sale, having a value of \$10 per ton, samples shall be submitted to the State chemist, giving the name of brand and place and name of manufacture, and State chemist shall grant a certificate setting forth the analysis. Every package shall have attached to it a guaranteed analysis, which must substantially correspond to the certificate. The chemist shall charge \$15 for analyzing each brand, but any purchaser may have samples analyzed free of charge.

It is unlawful for a manufacturer to misrepresent the constituents of fertilizers, and he shall be liable to indictment for misrepresentation. (Laws of 1895, No. 82.)

CALIFORNIA.

STATE BOARD OF AGRICULTURE.

By an act approved April 15, 1880, the State Agricultural Society is declared a State institution, its affairs as such being placed under the exclusive control and management of a body of 12 men, to be appointed by the Governor, and known as the State Board of Agriculture. The term of office for members of this board is 4 years, 3 members retiring at the end of each fiscal year (February 1) unless reappointed. Any vacancy occurring before the expiration of a term is filled by the Governor, the appointment being made for the remainder of such term.

Once a year the members of the board elect one of their own number to serve as their president and as president of the State Agricultural Society. They also select a secretary and treasurer, not of their number, who serve at the discretion of the board, which body defines their duties and fixes their compensation, and the bonds to be required of them. The secretary is required to report to the Governor any vacancy occurring in the membership of the board.

The board was empowered to make such changes in the constitution and rules of the State Agricultural Society as were necessary to bring them into conformity with the provisions of the act, and adapt them to the requirement that the affairs of the said society, including its meetings and exhibitions, be managed by the said board. The board provides for an annual fair or exhibition by the society of the industries and industrial products of the State, but the State assumes no liability for any premium awarded or debt created by said board in connection with such exhibition.

The marshals and police necessary to the preservation of peace and order at the annual fairs of the society are appointed by the board and are invested with the legal authority of executive officers of the peace.

The board is required to use all available means to collect and disseminate all kinds of useful information calculated to educate and benefit the industrial classes, develop the resources, and advance the material interests of the State. It must report annually to the Governor, giving a full and detailed account of its transactions, with the statistics and information gained, and a full statement of all funds received and disbursed. (Codes and Statutes, 1885, vol. 4, p. 416.)

Appropriations have been made for the State Agricultural Society and the district societies under certain conditions. (Acts of Apr. 1, 1897; Mar. 17, 1899; Mar. 21, 1901.)

LOCAL AGRICULTURAL SOCIETIES.

The law provides that the State shall be divided into 45 agricultural districts. Fifty or more persons representing the majority of the counties in a district may form an agricultural association and become incorporated, with power to acquire real estate by purchase or lease for the purpose of agricultural exhibitions and fairs, and to convey any real estate which may not be necessary for their purposes. The officers of the association shall consist of eight directors. The secretary and treasurer shall not be members of the board. The Governor shall appoint eight resident citizens as the district board, if notice of the formation of such society is given, and they shall hold office so that two shall retire at the end of each two years. Each association thus formed is declared a State institution, and their powers are prescribed. The duties of the secretary are given. They are authorized to accept State appropriations in aid of fairs. (Act of Mar. 31, 1897, as amended by act of Mar. 15, 1901.)

DISEASES OF ANIMALS.

It is unlawful for any person to sell or offer for sale, or bring within the State, any domestic animals knowing the same to be affected with any contagious or infectious disease, and every animal having glanders or farcy shall at once be killed by the owner or person having charge thereof. (Laws of 1891, chap. 402.)

An animal affected with contagious or infectious disease must not be driven on the highway or permitted to run with healthy animals. (Laws of 1893, chap. 219.)

It is the duty of the State Veterinarian to protect the health of all domestic animals from all contagious and infectious diseases, and he may make quarantine and sanitary regulations and issue certificates of inspection. Contagious and infectious diseases shall be reported to the State Dairy Bureau and the board of supervisors, who shall prevent the spread of diseases. Disinfection shall be done in accordance with the rules of the United States Bureau of Animal Industry. (Laws of 1899, chap. 96.)

HORTICULTURE.

The law provides that county boards of horticulture may cause inspection of orchards and nursery trees, etc., and any packing house or storeroom, and the owner must eradicate any injurious insect pests. If the owner fails to eradicate the pests the board may cause it to be done and the cost shall be a lien on the premises. (Laws of 1899, chap. 76.)

The law provides that it is the duty of any person bringing into the State nursery stock, fruit, vegetables, etc., to notify the State quarantine officer of his district and hold the stock for inspection. Each carload, box, package, etc., of nursery stock, fruit, vegetables, etc., shall be plainly marked with the names of consignor and consignee, and of the place where grown. If any such shipment shall be found infested with injurious insects or infected with plant diseases it shall be disinfected at the cost and expense of the owners.

Any shipment found infested with insects not found in the State shall be at once destroyed or sent out of the State, at the option of the owner. Any stock affected with "yellows" or "rosette" shall not be received, but returned or destroyed. (Laws of 1899, chap. 76.)

Seventy-five hundred dollars was appropriated for the State Board of Horticulture to send an entomological expert to Australia, New Zealand, and other countries to collect and import into California for distribution insects which prey upon fruit and tree pests abounding in California. (Laws of 1899, chap. 27, p. 27.)

Provision is made to regulate the sale of paris green for use as an insecticide. Manufacturers are required to submit a sample to the director of the experiment station at Berkeley, with a statement setting forth the brands, weight of each package, names of manufacturers and places of manufacture, and the amount of combined arsenic which the paris green contains in each package. Persons vending paris green are required to file the above statement with the director and to receive a certificate from him. The law prescribes the standard. The director shall analyze paris green offered for sale and forward the results to the State Board of Horticulture. Penalties are prescribed for violations. (Laws of 1900, chap. 53, p. 69.)

The law provides for the proper marking of packages of citrus fruits, etc. Penalties are prescribed for violations of the law. The Governor shall appoint an inspector of citrus-fruit shipments to serve without compensation, and his duties are prescribed. (Laws of 1900, chap. 224, p. 663.)

BEES.

The law provides that the board of supervisors of any county shall appoint an inspector upon petition of ten or more property holders claiming that apiaries are infected with foul brood or any other contagious disease. The duties of the inspector are given. (Laws of 1900, chap. 24, p. 13.)

COLORADO.

STATE AGRICULTURAL BOARD.

The State Agricultural Board is authorized to select the necessary lands for an experiment station in Cheyenne County and shall have control of the land and employees necessary to take charge of them. They are authorized to use certain funds accruing to the State from the act of Congress. The board is authorized to choose a president from among its number and a secretary not connected with the board. (3 Mills's An. Stat., secs. 50-59.)

STATE FAIRS.

The county commissioners of any county are empowered to appropriate not more than \$500 out of the county treasury for the purpose of aiding the agricultural exhibits of their county at the State fair. (3 Mills's An. Stat., sec. 1862a.)

It is the duty of the Colorado State Fair Association to report to the General Assembly of the State concerning the exhibitions at its fairs and to make recommendations for the promotion of the stock, agricultural, and horticultural interests of the State. (3 Mills's An. Stat., sec. 1863.)

DISEASES OF ANIMALS.

The law provides for the appointment of live-stock meat inspectors by the county commissioners, who are to hold office for one year and give bond. The duties of each inspector are prescribed.

It is unlawful to slaughter animals without inspection, but this act does not apply in the rural districts. (1 Mills's An. Stat., secs. 19, 20, 24, 26.)

The State of Colorado is divided into 28 round-up districts. The Governor is empowered to appoint yearly 3 round-up commissioners in each district for horse stock, also 9 inspection commissioners to serve for the whole State. It is the duty of the inspection commission to employ cattle inspectors and distribute them about the State to prevent the illegal shipping and slaughtering of cattle. (2 Mills's An. Stat., chap. 120, secs. 4201 et seq.; 3 *ibid.*, sec. 4228a.)

The law provides for the proper branding of animals, and prohibits the use of a brand by more than one person. All brands shall be recorded in the State brand book in the office of the Secretary of State. The means for procuring brands, with the fee, restrictions, etc., are given. Penalties are prescribed for the branding of animals belonging to another, or defacing the brands on animals already branded. (Laws of 1899, chap. 142, p. 352.)

Elaborate provisions relating to stock are made. (2 Mills's An. Stat., chap. 120, secs. 4201-4285.)

The law prohibits the importation of cattle from Texas or Indian Territory between the first of May and the first of September, etc., and prescribes a penalty for violation. (2 Mills's An. Stat., sec. 4285.)

The law provides for the creation of the office of State Veterinary Surgeon, whose term of office is 2 years. (*Ibid.*, sec. 4291 et seq.)

The law provides for the creation of the State Veterinary Sanitary Board, to be composed of 3 members to be appointed by the Governor, and further provides upon request and recommendation of 5 woolgrowers of any county that they shall appoint a sheep inspector in such county. (*Ibid.*, sec. 4296.)

The law provides that any domestic animal found diseased and unfit for food may be killed by any officer of the board of health. (Laws of 1893, p. 391.)

It is unlawful to allow any diseased animal, or animal exposed to contagious disease, to run at large, to be sold, driven, or offered for sale, or brought into the State. (Laws of 1893, p. 391.)

HORTICULTURE.

It is the duty of the State Board of Horticulture to prescribe regulations for the prevention of contagious diseases among fruit and fruit trees, for the prevention, treatment, cure, and extirpation of fruit pests, and for disinfecting grafts, scions, empty fruit boxes, and trees. (Laws of 1897, chap. 12.)

The law provides for the appointment of inspectors in each county, and it is unlawful to carry into any county any trees, vines, shrubs, etc., without giving notice of their arrival at destination to the inspector of said county; and it is unlawful to sell any article mentioned except when they have been inspected and disinfected if necessary, and on order of said inspector. The inspector has power to maintain a quarantine station.

The law provides for the proper marking of nursery stock, showing the name of consignee and consignor, where grown, etc.

The county horticultural inspector has power to inspect any nurseries in his county, and if found to be infested with insect pests or other diseases he can order the eradication of the same, and upon failure of the owner to comply, or should he refuse to destroy or treat as directed, he shall be guilty of maintaining a public nuisance, and if found guilty the court may order the inspector to abate the nuisance and said owner shall pay the expenses. (Laws of 1897, chap. 55; Laws of 1899, chap. 102.)

BEES.

Provision is made for county inspection of apiaries, treatment or destruction of appliances where foul brood is found to exist, and for penalties for the sale of infected bees and appurtenances. (Laws of 1891, p. 44.)

It is unlawful to spray fruit trees with substances injurious to bees. (Laws of 1897, chap. 55, sec. 8.)

There is an association known as the Colorado State Bee Keepers' Association, whose duties are prescribed. (3 Mills' An. Stat., chap. 14, sec. 232 et seq.)

CONNECTICUT.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of the Governor, who is *ex officio* president, and twelve persons; and the manner of their appointment is prescribed, (Public Laws of 1899, chap. 147.)

They have power to appoint a secretary and treasurer, receive donations and bequests for the general interests of husbandry and agricultural education, regulate local agricultural societies, inquire into methods of husbandry and horticulture, encourage the formation of farmer's clubs, libraries, and reading rooms, and make regulations to prevent the spread of disease among domestic animals and to prevent diseases of fruit trees. (Gen. Stats. 1888, secs. 1696 et seq., except 1699 and 1708; Public Laws of 1893, chap. 216; Public Laws of 1895, chap. 288.)

The appropriation for the State Board of Agriculture in 1901 was \$7,000. (Public Acts of 1901, chap. 161.)

LOCAL AGRICULTURAL SOCIETIES.

By General Statutes, sec. 1720, as amended by Public Laws, 1893, page 84, General Statutes, sec. 1721 et seq., provision is made for the appropriation by the State to the local agricultural societies of the State of a sum equal to the average annual sum paid by the State to them for the 4 years prior to the enactment of the section. If any society shall in any one year raise the sum of \$100 and pay out the same in premiums it shall be entitled to the sum of \$100 from the State, and the balance of the appropriation, if any, shall be divided among all local agricultural societies in proportion to the amount of their premiums exceeding \$100 paid at fairs held within 12 months. The sale of liquor, games of chance, and gambling on the grounds of any incorporated agricultural society are prohibited, and no society is entitled to its annual appropriation unless the president, secretary, and treasurer thereof make affidavit that this provision has been complied with. An additional allowance formerly made to the Connecticut State Agricultural Society has been discontinued. (Public Acts of 1895, chap. 229.) The appropriation in 1901 for local agricultural societies was \$11,600. (Public Acts of 1901, p. 161.)

COMMERCIAL FEEDING STUFFS.

Commercial feeding stuffs are defined, and every parcel thereof exposed for sale within the State is required to have a statement affixed to it certifying to its constituents, the name, brand, or trade-mark, and the name and address of the manufacturer or importer. Violations of the act are punishable by fine of not exceeding \$100 for the first and \$200 for each subsequent offense. The Connecticut Agricultural Experiment Station is authorized to analyze such feeding stuffs and to publish annual bulletins concerning them. The Dairy Commissioner is charged with the enforcement of the act. (Public Laws of 1899, chap. 219.)

DISEASES OF ANIMALS.

The Governor is required to appoint biennially a Commissioner of Domestic Animals, who shall be a practical farmer and stock breeder of at least 10 years' experience, and who may employ necessary assistants. (Laws of 1897, chap. 119.)

There are 6 sections covering the bringing of cattle into the State, and reports to be made to the commissioner as to the number and sex, etc., and also giving the powers of the commissioner in regard to the quarantine of animals infected with contagious disease, prohibiting the sale of products thereof, the length of duration of quarantine, etc. Provision is made for the killing of diseased animals and payment for the same to the owner.

There is an act which provides for the examination by the agents of the Connecticut Humane Society of any animal supposed to be infected with the disease known as glanders or farcy, under certain rules and regulations. The animals may be quarantined or killed.

The disinfection of stalls or buildings in which diseased animals have been housed is required. (Laws of 1897, chap. 211.)

HORTICULTURE.

The law provides for a commission on peach yellows, to be appointed by the State Board of Agriculture, to carry out such plans as may be deemed necessary for the eradication of disease.

The law prescribes penalties for the sale of fruit while an appeal is pending and for selling fruit from diseased trees. (Laws of 1893, chap. 216.)

DELAWARE.

STATE BOARD OF AGRICULTURE.

Three Commissioners of Agriculture are required to be appointed by the Governor of the State, with the consent of the Senate, 1 of whom shall reside in each county of the State, and one of whom shall be of different political faith from the other two. They are to be appointed respectively for the terms of 1, 2, and 3 years. They and their successors in office are made a department to be known as the State Board of Agriculture, which is to remain such for the term of 8 years and until said board shall be abolished. The term of office of commissioners appointed to succeed the first appointees shall be 3 years. Their compensation is \$4 a day and actual traveling expenses, provided they do not exceed 20 days in the year and an annual appropriation of \$1,000. They are to have general supervision of the agricultural and horticultural interests of the State, are empowered to take all necessary measures to prevent and eradicate diseases of agricultural and horticultural products and domestic animals, and the methods are pointed out in the statute. They are also required to publish information as to the above diseases, to cause nurseries, orchards, and vineyards to be inspected and the products thereof to be labeled and certificates granted to the owners of the same and to regulate the transportation of agricultural and horticultural products and cattle into the State. Penalties are prescribed for the violation of the statute and of the regulations of the board. The board is also empowered to invite and encourage immigration into the State. (Laws of Del., chap. 216.)

FARMER'S INSTITUTES.

Provision is made for farmers' institutes to be held yearly in each county of the State, and the sum of \$600 annually is appropriated for that purpose. (Rev. Stat., p. 989.)

DISEASES OF ANIMALS.

Beef cattle may be brought into the State provided that such cattle shall be taken directly from the cars to the slaughterhouse and kept there until slaughtered. (Laws of 1891, chap. 180.)

The Governor may prescribe precautions against the spread of infection, including the destruction of diseased animals after veterinary examination. (Laws of 1893, chap. 639.)

An appropriation is made for the payment of stated sums to the owner of domestic animals dying from anthrax, provided notice be given of such death to the Governor within 10 days. Vaccination of animals which have been exposed to the disease is provided for. (Laws of 1897, chaps. 450, 451.)

HORTICULTURE.

The Governor is authorized to appoint peach commissioners, who upon application are to make inspection of peach trees at certain seasons. They are required to mark every tree having the disease known as the "yellows." Such trees are to be destroyed either by the owners or the commissioners. (Laws of 1891, chap. 282.)

Provision is made for the appointment by the Governor of a competent person to inspect nurseries and orchards for the San Jose scale, and to recommend such remedies as he may deem proper for its extermination. (Laws of 1897, chap. 419.)

Three hundred dollars annually is appropriated to the Peninsula Horticultural Society. (Rev. Stat., p. 990.)

FERTILIZERS.

The State Chemist is required, upon the request of any citizen, to make an analysis of fertilizers purchased by such person, and is authorized to receive \$1 in payment for such services. (Laws of 1899, chap. 213.)

DISTRICT OF COLUMBIA.

DISEASES OF ANIMALS.

The United States Bureau of Animal Industry may cause the death of any diseased animal, and provision is made for the appraisal of all animals killed. (Fourteenth Report, Bureau of Animal Industry, p. 445.)

FLORIDA.

COMMISSIONER OF AGRICULTURE.

A Commissioner of Agriculture is provided for, to be elected at the same time and hold office for the same term (4 years) as the Governor. The commissioner is required to perform such duties in relation to agriculture as may be prescribed by law, to have supervision of the public lands, of the State prison, and of the Bureau of Immigration. He is required to make a report to the Governor at the beginning of each session of the legislature. His compensation is fixed at \$1,500 a year. (Const., art. 4, sec. 20.)

A Department of Agriculture is created, with the Commissioner of Agriculture at its head. His duties in this department are generally to take charge of the agricultural interests of the State, to collect and disseminate information concerning the same, to collect specimens of the agricultural, forest, and mineral products of the State, and to publish statistics. He is required to reside and keep his office at the seat of government. (Rev. Stat., sec. 137 et seq.)

The inspection, analysis, and regulation of the sale of commercial fertilizers is placed under his general direction. (Rev. Stat., sec. 893, as amended by act of May 22, 1901.)

DISEASES OF ANIMALS.

It is unlawful for any person to bring into the State or offer for sale therein domestic animals suffering from contagious diseases. (Laws of 1895, chap. 4351.)

When hogs or sheep are butchered for market, the heads are to be brought to the market also. In the case of beeves the hide is required to be taken to the nearest inspector. (Laws of 1893, chap. 4187, pp. 120, 121.)

The State Board of Health is to have general supervision of the public health and make, promulgate, and enforce such rules and regulations as may be necessary for the preservation of the same, and to prevent the importation or spread of hydrophobia. (Laws of 1895, chap. 4348.)

HORTICULTURE.

It is unlawful for any person to knowingly sell or give away any diseased nursery stock. (Laws of 1899, p. 213.)

FERTILIZERS.

Commercial fertilizers sold in or imported into the State are required to be plainly stamped with the name of the fertilizer and chemical analysis, and fertilizers not so marked are subject to confiscation. (Laws of 1895, p. 131.)

GEORGIA.

DEPARTMENT OF AGRICULTURE.

A department of agriculture is established after the direction of the Commissioner of Agriculture, who is elected by the qualified electors of the State and holds office for two years. He is required to be a practical farmer, and receives an annual salary of \$2,000. He has charge of the agricultural and horticultural interests of the State, is required to publish information concerning the geological formation of the State soils, etc., distributes seeds, regulates the analysis of fertilizers, and investigates the subjects of irrigation, dairying, fences, etc. (Code, 1895, secs. 1789-1792.)

The Commissioner of Agriculture is given certain powers in reference to the inspection of fertilizers and the enforcement of the law for the same. (Code of 1895, secs. 1551-1569.)

DISEASES OF ANIMALS.

The law prohibits the conveying of cattle through certain counties of the State during certain months of the year, and punishment is prescribed. (Code of 1895, Vol. III, sec. 1039.)

Work cattle may be returned to the State during certain months, or at any time if they have not been out of said territory longer than two weeks. (Laws of 1899, No. 332, p. 489.)

The Commissioner of Agriculture maintains and enforces quarantine laws. (Laws of 1899, No. 374, p. 97.)

HORTICULTURE.

There is a State Board of Entomology, with the Commissioner of Agriculture as chairman, which has full power to regulate inspection, etc., and prescribe the conditions of the sale and conveyance of plants within and without the State, together with the inspection of same. (Laws of 1898, chap. 78, p. 94.)

FERTILIZERS.

The law covers the condition of sale of fertilizers, and gives the grades of fertilizers under three heads. (Laws of 1897, No. 358, p. 115.)

The Commissioner of Agriculture appoints inspectors. (Laws of 1890, p. 142.)

The law provides for the proper branding and tagging of each package of fertilizer, and each package must have attached the guaranteed analysis showing percentage of valuable constituents. It is unlawful to sell any fertilizer, etc., unless registered and tagged. (Laws of 1891, pp. 144, 145, 146.)

TERRITORY OF HAWAII.

COMMISSIONER OF AGRICULTURE.

By the organic act of the Territory of Hawaii a Commissioner of Agriculture and Forestry was created. This commissioner exercises substantially the same powers as were formerly vested in the Board of Agriculture, which were in brief to have general supervision of the agricultural interests of the islands, to authorize exhibitions to be held, to establish experiment stations, to publish information, and to prevent and suppress agricultural and horticultural pests and diseases. (Act of June 14, 1900, 31 U. S. Stat., 141.)

IDAHO.

LOCAL AGRICULTURAL SOCIETIES.

Agricultural fair corporations are authorized to purchase, lease, and dispose of not exceeding 160 acres of land for the purpose of buildings and improvements for the promotion of agricultural, horticultural, and similar industries. The indebtedness which may be incurred is also provided for. Such corporations are prohibited from charging fees greater than necessary for their actual expenses. The board of county commissioners of any county is authorized, in any year in which an agricultural fair is held in said county, to appropriate to not more than one association holding such fair a sum not exceeding \$500, to defray the expenses of the same. (Rev. Stat., 1887, secs. 1775-1778.)

DISEASES OF ANIMALS.

The State sheep inspectors' duties are given.

The conveyance of sheep infected with disease, and the penalties for herding and transporting diseased sheep without certificates of inspection are given. (Laws of 1899, pp. 352-358.)

HORTICULTURE.

A State Board of Horticultural Inspection is created consisting of the professors of botany and zoology in the University of Idaho, ex officio, and three members to be appointed by the Governor for a term of 3 years. Said board is required to divide the State of Idaho into not more than 10 districts, and is required to appoint a general State inspector and in each district a State horticultural inspector. The general State inspector is to receive a compensation not exceeding \$6 per day, and a district inspector not exceeding \$5 per day, and they shall respectively hold office during the pleasure of the board. The State board is given very full and complete control over the horticultural interests of the State for the prevention and suppression of pests and diseases of fruit, trees, vines, etc., and the regulation of all places, vehicles, and packages used in connection with the storing, packing, and transportation of horticultural products. (Act of February 10, 1899, as amended by act of March 7, 1899, both repealing act of March 12, 1897.)

It is unlawful to distribute or transport within the State nursery stock, etc., affected with infectious disease. The law provides that all nursery stock must have affixed to it a stamp or label showing the name of the produce and the shipper and the locality where grown. (Laws of 1899, pp. 122, 437.)

ILLINOIS.

STATE BOARD OF AGRICULTURE.

The Illinois State Board of Agriculture consists of a president, the last ex-president of the board, and one vice-president from each Congressional district. The president and vice-president are elected every 2 years at the State fair by delegates from the county agricultural societies, each county being entitled to 3 votes. The board appoints a secretary and treasurer not members of the board, who hold office during the term for which the board is elected unless sooner removed. The State Board of Agriculture has control of the affairs of the Department of Agriculture and of all State affairs and live-stock shows. It is required to make an annual report to the governor, and to collect agricultural statistics. The State Board of Agriculture receives appropriations from the State. (Rev. Stat. 1895, chap. 5, secs. 1-15.)

HORTICULTURAL SOCIETIES.

The Illinois State Horticultural Society is a public corporation, embracing 3 district horticultural societies. Its affairs are managed by an executive board consisting of the president and secretary of the society and the president and one vice-president from each of the 3 district societies. The board is required to publish an annual report. Members of the district societies have the same privileges as members of the State society, except that of voting for officers. The State society receives aid from the State treasury, and at least \$1,000 a year must be expended in field experiments. (Rev. Stat. 1895, chap. 5, secs. 20-25; Laws of 1895, p. 33.)

LOCAL AGRICULTURAL SOCIETIES.

Whenever any appropriation is made for the benefit of county or other agricultural societies it is to be equally divided among such societies as hold annual fairs, pay at least \$300 each in premiums, and report by November 15th to the State Board of Agriculture. (Rev. Stat. 1895, chap. 5, sec. 7.)

FARMERS' INSTITUTES.

The Illinois Farmers' Institutes is created a public corporation. It consists of 3 delegates from each county elected by the county farmers' institute. Its board of directors consists of the State Superintendent of Public Instruction, the professor of agriculture in the University of Illinois, the president of the State Board of Agriculture, the State Horticultural Society, and the State Dairymen's Association, and one member from each Congressional district selected by the delegates from the county institutes of the district at the annual meeting of the State institute. The elected members of the board hold office for 2 years, one-half retiring each year. (Rev. Stat. 1895, sec. 34.)

DISEASES OF ANIMALS.

The law provides for the prevention of the spread of infectious diseases among swine, and fixes a penalty for allowing the swine to run at large. The owner having knowledge of infectious diseases must use all reasonable means to prevent them from spreading. (Laws of 1895, p. 6.)

It is unlawful to deal in swine that have died of any disease or that have been killed on account of any disease. (Laws of 1898, chap. 113.)

HORTICULTURE.

The law provides for an annual inspection of nurseries by the State Entomologist and for the issuing of certificates and filing of duplicates with the director of the State Agricultural Experiment Station and with the secretary of the State Horticultural Society, etc., and provides that a copy of the original certificate shall be placed on each package shipped or delivered.

Shipment of nursery stock from other States must bear certificate of inspection, and without such certificate it is unlawful for common carriers to deliver any such property before it is inspected by the State Entomologist. (Laws of 1899, p. 49.)

INDIANA.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is incorporated. Its officers are to be a president, secretary, treasurer, and such other officers as the board may think necessary. The time of meeting is prescribed in the statute. The board is required to report annually to the General Assembly. It is empowered to hold State fairs, may purchase and hold real estate, and is exempt from taxation. A yearly appropriation of \$10,000 for the purpose of paying premiums is granted by the State to the board. (Thornton's Rev. Stats., 1897, secs. 2835 et seq.)

LOCAL AGRICULTURAL SOCIETIES.

Thirty or more persons resident in any county or in any district composed of two counties may organize an association for the improvement of agriculture in said county or district under certain conditions prescribed by the statute; and, having complied with those conditions, may receive from the treasury of the county, or the treasuries of the counties in the district, a sum of money prescribed in the statute. Such societies are also authorized to grant premiums, and must forward their treasurers' accounts to the State Board of Agriculture and also publish the same in a newspaper in their districts. (Ibid., secs. 2851-2853.)

All associations organized under section 2851 are made corporations and authorized to purchase, hold, and convey not exceeding 80 acres of land; and all purchases already made are legalized. Regulations for the transfer and voting of stock in such corporations are prescribed. (Ibid., secs. 2854-2858; Acts of 1899, chap. 12.)

COUNTY INSTITUTES.

County institutes are provided for to be held between the 1st of November and the 1st of April of each year under the direction of the committee of experimental agriculture and horticulture of the board of trustees together with the faculty of agriculture in Purdue University, and an appropriation of \$5,000 is made for this purpose. (Thornton's Rev. Stats., secs. 2859-2861.)

FAIR ASSOCIATIONS.

Any number of persons not less than five may incorporate for the purpose of forming fair associations, and the powers and duties of such corporations are prescribed. (Ibid., secs. 2862-2865.)

Thirty or more persons, residents of two or more States of the United States, may become incorporated in the State of Indiana for the purpose of holding a fair in said State. The powers and duties of such corporations are defined; among other things they may receive devises, bequests, and donations of real or personal property not exceeding 160 acres of land, the value of which shall not be more than \$500,000. (Ibid., secs. 2866-2880.)

The capital stock of any such corporation shall not exceed \$500,000, unless, at a meeting called specially for the purpose, a majority of the stockholders shall vote to increase it; but in any case it shall not exceed \$1,000,000. Provision for the award of premiums is made, also for the publication of awards and for a report of the same to the State Board of Agriculture. Such corporations are empowered to sell lands, to borrow money at not more than 6 per cent interest and in a sum not exceeding \$200,000, and to issue bonds for the same not exceeding \$200,000 and not to run longer than 20 years.

The board of county commissioners of any county whose taxable property is valued at \$20,000,000 or more, in which such interstate fair may be held, may make an allowance out of the county treasury not exceeding one-half the amount expended by the corporation on its buildings and improvements, and not in any event exceeding \$10,000. (Ibid., sec. 2877.)

The board of county commissioners of any county containing taxable property of the value of \$20,000,000 or more may make an allowance out of the general fund of the county to any agricultural or horticultural society in said county. (Ibid., secs. 8263 et seq.)

HORTICULTURAL SOCIETIES.

Provision is made for the organization of State, district, and county horticultural associations. The State Horticultural Association is required to hold annual meetings and to provide for the representation of district and county horticultural societies thereat. (Ibid., secs. 4704-4706.)

DISEASES OF ANIMALS.

The law prescribes the duties of railroad companies and stock-yard associations in regard to the shipment and handling of hogs.

Fair-ground managers are required to keep pens where swine are exhibited in good condition, and must require from the exhibitor certain facts in regard to the swine.

The law provides for the conveyance and shipment of infected swine on public highways, and also provides for the destruction of swine infected with disease. (Act of March 5, 1897.)

HORTICULTURE.

The law provides for the inspection of nursery stock once a year by the State Entomologist, and provides for the destruction of injurious insects or fungi.

All nursery stock must bear a printed certificate showing examination by the State Entomologist.

It is the duty of the grower of nursery stock to report to the State Entomologist all packages that are without a certificate on the outside of a package. (Laws of 1899, chap. 138.)

FERTILIZERS.

There is an act to regulate the manufacture and sale of commercial fertilizers and to prevent the manufacture and sale of adulterated commercial fertilizers, prescribing penalties.

The duty of inspection, analysis, and issuing of certificates devolves upon the State chemist. (Laws of 1899, chaps. 33, 75.)

IOWA.

STATE AND LOCAL AGRICULTURAL SOCIETIES.

Any three or more persons, a majority of whom shall be citizens of the State, may incorporate for agricultural, horticultural, and other purposes enumerated. Those organized for horticultural and agricultural purposes shall not own to exceed 9 sections of land and only necessary personal property for the management thereof, and no dividends shall be declared. (An. Code, 1897, sec. 1642 et seq.)

The board of directors of the State Agricultural Society, together with delegates of county societies, shall hold an annual meeting at the seat of government. (Ibid., sec. 1653.) By acts of 1898, chapter 42, at such meeting a president, vice-president, and 5 directors shall be elected. The president and vice-president shall be directors ex officio, and the term of the elective directors shall be 2 years, so that 5 shall retire every year. The president and vice-president are to hold office for 1 year. The board shall also elect a secretary and treasurer, whose terms of office shall be 1 year. The board is required to report annually to the Governor. County agricultural societies holding in fee, free of incumbrances, or leasing not less than 10 acres of land and having improvements thereon worth not less than \$2,000 are entitled to receive from the board of supervisors of the county \$100 for every thousand inhabitants of the county, but not to exceed \$1,000 in all.

County or district agricultural societies having reported to the State agricultural society and having raised any sum of money from membership, are entitled to not exceeding \$200 from the State under certain conditions prescribed by the statute. Gambling and the sale of liquor on fair grounds are prohibited. (Acts of 1898, chap. 42.)

STATE HORTICULTURAL SOCIETY.

Provision is made for annual meetings of the State Horticultural Society, and for the election at the same time of the president, vice-president, secretary, treasurer, and librarian, to serve 1 year, and one-half of the board of directors. Such board shall not exceed 12 in number and shall hold office 2 years, one-half retiring each year. The society shall make an annual report to the Governor, and is required to encourage the organization of district and county horticultural societies. (Ibid., secs. 1669-1671.)

FARMERS' INSTITUTES.

Forty or more farmers of any county may organize a farmers' institute association with 3 officers and an executive committee of 3, and upon certain prescribed conditions such an institute is entitled to receive not to exceed \$50 from the State treasury. (Ibid., sec. 1675.)

DISEASES OF ANIMALS.

The law provides for the immediate destruction of animals that have died of disease or that have been slaughtered on account of disease.

It is unlawful to sell or give away any swine that have died of any disease or that have been killed on account of any disease, and the law prohibits the conveyance of any diseased swine on the public highway.

It is unlawful to allow diseased swine to run at large. (Laws of 1896, chap. 58, p. 59.)

The State veterinary surgeon has supervision of contagious and infectious diseases among domestic animals, and is empowered to establish quarantine. He may destroy diseased stock, and the owner shall receive compensation in actual value when condemned, but no compensation is allowed for stock in transit across the State.

Diseased sheep are to be under the care of a county sheep inspector, and he may order owners to dip or otherwise treat sheep to prevent the spread of scab.

It is unlawful to bring into the State any cattle in such condition as to infect other cattle with pleuro-pneumonia or Texas fever, and have horses, mules, etc., affected with nasal gleet, glanders, or farcy, and no horses suffering from such disease shall run at large. Penalties are prescribed for violation. (Code of 1897.)

HORTICULTURE.

The law provides that the State Entomologist may appoint five qualified assistants and fix their compensation. The duties of the State Entomologist are given in regard to the extermination of San Jose scale.

The State Entomologist has authority to enter upon any grounds for the purpose of inspection, and if he finds stock infected by the scale he may establish quarantine.

The law provides for the proper tagging of nursery stock, etc., shipped into the State.

It is unlawful to bring into the State any nursery stock unless accompanied by a certificate of inspection by a State Entomologist of the State from which the shipment was made, showing it to be inspected and found apparently free from the scale. (Laws of 1898, chap. 53.)

KANSAS.

STATE BOARD OF AGRICULTURE.

The officers and the executive committee of the State Agricultural Society are constituted a State Board of Agriculture, together with the Governor and Secretary of State ex officio. The term of office of the president, vice-president, and treasurer is 1 year; that of the secretary and other members of the board is 2 years. In addition, delegates from each county or district agricultural society are entitled to attend the annual meetings of the State board, and for the time being are ex officio members of the board. This is coupled with the provision that the county or district societies so represented make monthly reports to the State board concerning the condition of crops, stock, etc.; also make a statement of awards at fairs and exhibitions held by such societies, together with abstracts of the reports of their treasurers. The State Board of Agriculture is required to report annually to the legislature, and its office is to be at the seat of government. (Gen. Stat., sec. 6429 et seq.)

Penalties are provided for the violation of the act. (Gen. Stat., sec. 6441.)

STATE AGRICULTURAL SOCIETY.

The Kansas State Agricultural Society is authorized to hold real and personal property in addition to its library and agricultural and scientific collections, to the amount of \$10,000. It is also authorized to hold exhibitions and adopt rules for the regulation thereof. (Dassler's Gen. Stat. of 1899, secs. 6424-6428.)

LOCAL AGRICULTURAL SOCIETIES.

County or district agricultural societies entitled to representation in the State Board of Agriculture, which have raised and paid to their treasurers not less than \$50 each, upon verified certificates of the fact presented to the board of county commissioners, shall be entitled to receive from the county treasury an amount equal to what has been raised, but not in any case to exceed \$200. (Gen. Stat., sec. 6437.)

When authorized by popular vote, the boards of commissioners of every county in the State are authorized to issue bonds for or appropriate a sum of money from the

county treasury of their respective counties not to exceed $1\frac{1}{2}$ mills on the dollar on the amount of taxable property in their respective counties for the purpose of holding fairs and exhibitions, said appropriation or proceeds of bonds to be expended by the county agricultural society under the direction of the board of county commissioners. Property acquired under this act is held in trust by the county commissioners for the benefit of the county agricultural society, and is not subject to sale on execution. County agricultural and horticultural societies may make regulations for the conduct of their exhibitions. (Gen. Stat., secs. 278-281.)

DISEASES OF ANIMALS.

The Live Stock Sanitary Commission is required to protect the health of domestic animals, to promulgate rules, and to establish and maintain quarantine and other sanitary regulations.

Stock yards are placed under special provisions. (Laws of 1895, chap. 352.)

The law provides for the importation, conveyance, inspection, and care of sheep, and in case of diseased sheep and cattle it is the duty of the inspectors to treat them at the cost of owners. It is unlawful for any person to use or permit to run at large any horse, mule, or ass diseased with glanders. (Gen. Stats. of 1899.)

HORTICULTURE.

It is unlawful for any person to misrepresent, deceive, or defraud any person in the sale of trees, etc., and liability is placed at treble the amount of damages sustained. (Laws of 1886, chap. 100.)

SUGAR BOUNTY.

Section 6830 provides that the State Treasurer shall pay to anyone engaged in the manufacture of sugar from beets, sorghum, or other sugar-yielding canes or plants grown in the State a bounty of three-fourths of 1 cent per pound upon each and every pound of sugar manufactured under the conditions and restrictions of the act. (Laws of 1891, chap. 60.)

KENTUCKY.

BUREAU OF AGRICULTURE, LABOR, AND STATISTICS.

A Commissioner of Agriculture, Labor, and Statistics is provided for, to be elected at the same time as the Governor, to serve for 4 years, and to be ineligible to reelection for the 4 years succeeding the expiration of his term. He must be at least 30 years of age and have resided in the State at least 2 years next before his election. He is entitled to receive a salary fixed by law. (Const., secs. 91, 93, 96, 152.)

An Advisory Board of 4 persons is authorized to be appointed by the Governor, 1 member of which shall be the director of the experiment station at Lexington. The Commissioner of Agriculture is made chairman of this board. The duties of this board are to counsel as to the promotion of agriculture and horticulture in the State, and it is authorized to employ lecturers and circulate information. (Ibid., secs. 37, 38.)

A Bureau of Agriculture, Labor, and Statistics is created, to be under the direction of the commissioner aforesaid. The commissioner is required to keep his office at the seat of government, to give a bond for the faithful performance of his duties, and is entitled to receive an annual salary of \$2,500. The commissioner is required, among other things, to promote agriculture and horticulture, the formation of agricultural and horticultural societies, to ascertain the conditions of agriculture and horticulture throughout the State, to look after the interests of live stock, to collect and distribute information and statistics, to publish condensed monthly crop reports in the newspapers, to report to each General Assembly of the State, to distribute seeds and plants, and to cause soils to be analyzed. (Carroll's Ky. Stat. of 1899, sec. 34 et seq.)

DISEASES OF ANIMALS.

It is the duty of the State Board of Health to suppress all contagious and infectious diseases affecting cattle. (Laws of 1887, act 86.)

The duties of the State board for the suppression of disease are outlined. (Laws of 1894, secs. 49-63.)

The county judge has the power to authorize the destruction of diseased animals, and the amount to be paid the owners is given. Penalty is prescribed if the owner refuses to destroy the animal. (Laws of 1897, chap. 3.)

HORTICULTURE.

The law prescribes the duties of the entomologist and botanist of the State agricultural experiment station, says what shall be considered a misdemeanor, and fixes penalty. The law provides for the shipment of nursery stock. (Laws of 1894, chap. 101.)

FERTILIZERS.

There is an act to regulate the sale of fertilizers, which states the conditions under which fertilizers may be sold in the State. The director of the experiment station shall annually analyze at least one sample of every fertilizer sold or offered for sale in the State. (Laws of 1898, chap. 181.)

LOUISIANA.

BUREAU OF AGRICULTURE AND IMMIGRATION.

The Governor, with the advice and consent of the Senate, is authorized to appoint a Commissioner of Agriculture and Immigration. The Commissioner of Agriculture, together with the Governor and the vice-president of the Louisiana State University, shall constitute a Bureau of Agriculture and Immigration. This bureau has general charge over the agricultural, horticultural, silk, and live-stock interests of the State, and is required to collect statistics and information in regard to the same. The commissioner holds office for 4 years, is required to keep his office at the seat of government, and is entitled to receive an annual salary of \$2,500. (Wolff's R. L., p. 6; Laws of 1894, act 141.)

The bureau is authorized to regulate the sale of paris green used as an insecticide. (Ibid., p. 9; Laws of 1890, act 131.)

The bureau is given power also to regulate the inspection and sale of fertilizers. (Ibid., p. 10; Laws of 1894, act 74.)

DISEASES OF ANIMALS.

The law provides for the destruction of animals with infectious diseases, and prescribes a penalty, but the provision of this act does not apply to range stock. (Laws of 1898, No. 98.)

The police juries of each parish are empowered to organize and act as a live stock sanitary commission, with authority to enact and enforce regulations for the suppression of contagious diseases affecting live stock. (Wolff's R. L., p. 6; Laws of 1899, act 147.)

When public safety shall demand, such diseased animals shall be killed.

The law provides that animals that have been exposed to contagious diseases shall not be brought into the State. (Laws of 1894, act of July 12.)

HORTICULTURE.

It is unlawful to bring into the State any fruit growth affected with any infectious disease or injurious insects.

All fruit trees are subject to the inspection of the entomologist of the State Horticultural Experiment Station.

It is the duty of the entomologist to visit any section of the State, on request of the director of such station, to make inspection of diseased fruit trees, etc. (Laws of 1894, No. 129.)

FERTILIZERS.

The State Board of Agriculture and Immigration is authorized to control the sale and manufacture of fertilizers and suppress adulteration.

Samples of fertilizers are to be submitted to the Commissioner of Agriculture for inspection and analysis, and the standard of fertilizers is given. Commissioners are authorized to seize any fertilizers sold in contravention of this act.

The director of the several experiment stations of the State shall be the official chemist of the State Board of Agriculture. (Laws of 1898, No. 126.)

MAINE.

DEPARTMENT OF AGRICULTURE.

A Department of Agriculture is established with a commissioner at its head. The commissioner is elected biennially by the legislature on joint ballot. His salary is \$1,500 a year. He is required to cause to be held two farmers' institutes a year in

each county; to hold annually a State dairy conference in connection with the State Dairymen's Association; to assist and permit the organization of agricultural, horticultural, and live stock associations; to apportion the stipend appropriated by the State to the various local agricultural societies; to make an annual report to the Governor containing, among other things, an itemized account of receipts and expenditures in his office; and to aid in the enforcement of the pure food laws of the State. The former State Board of Agriculture is abolished. An appropriation of \$3,000 is made, above the salary of the commissioner, for the farmers' institutes and dairymen's work. (Laws of 1901, chap. 204.)

STATE AGRICULTURAL SOCIETY.

Provision is made for the election of officers in the Maine State Agricultural Society, which is allowed to hold property the annual income of which is not to exceed \$5,000. (Rev. Stat., 1883, chap. 58, secs. 8, 9.)

LOCAL AGRICULTURAL SOCIETIES.

County and local agricultural societies are authorized to hold property the income of which shall not exceed \$3,000 annually. (Ibid., sec. 10.)

An appropriation is made from the State treasury of a sum not exceeding 1 cent for each inhabitant of the State, to be divided among the agricultural societies of the State in proportion to the amount of premiums actually paid by them at exhibitions, with a proviso that the State prohibitory liquor law is enforced at such exhibitions. Certain societies receive a direct appropriation not apportioned as above. (Ibid., sec. 11, as amended by Laws of 1897, chap. 288.)

COMMERCIAL FEEDING STUFFS.

The term "concentrated commercial feeding stuffs" is defined, and the sale thereof is regulated. Provision is made for the analysis and labeling of the same under the direction of the Maine Agricultural Experiment Station. The director of said station is required to report violations of the act to the secretary of the State Board of Agriculture, whose duty it is to notify the offender of the violation and require him to comply with the law. (Laws of 1897, chap. 334.)

[As the State Board of Agriculture was abolished by Laws of 1901, chapter 204, it is probable that this duty of the secretary of the State board now devolves upon the Commissioner of Agriculture.]

DISEASES OF ANIMALS.

The Governor has the appointment of commissioners designated as the State of Maine Cattle Commission, whose duty it is to investigate contagious diseases among cattle, establish and maintain quarantine, etc. (Laws of 1893, chap. 194; Laws of 1897, chap. 311.)

FERTILIZERS.

The law prescribes the conditions under which commercial fertilizers may be sold.

Manufacturers are required to file with the Maine Agricultural Experiment Station a statement of analysis, prices, etc., and to send a sample. Penalties are imposed for selling fertilizers that contain a less percentage than the implied guaranty as indicated by the tags. (Laws of 1897, chap. 197.)

MARYLAND.

INDUSTRIAL BUREAU.

The Chief of the Industrial Bureau of Maryland is appointed by the Governor, with the advice and consent of the Senate, and holds office for two years, at a salary of \$2,500 a year. He has charge of a bureau of statistics and information concerning the various branches of industry in the State. A part of his duty is to collect information in regard to the agricultural condition and products of the several counties of the State, the acreage under cultivation and planted to the various crops, the character and price of lands, the live stock, and all other matters pertaining to agricultural pursuits which may be of general interest and calculated to attract immigration to the State. He is directed to classify and arrange the information obtained concerning agriculture and other industries, and publish it in substantial book form, revising and republishing the same annually.

There is an annual appropriation of \$5,000, to pay the salary of the Chief of the Industrial Bureau and the expenses incident to the execution of his duties. (Laws of 1892, chap. 29.)

AGRICULTURAL FAIR ASSOCIATIONS.

The sum of \$5,000 annually is appropriated by the State in aid of agricultural fair associations. If in any county an agricultural association be incorporated whose capital stock shall be \$10,000, and the same shall be subscribed and paid in, or real estate and improvements shall be acquired by such association to the value of \$10,000, upon the filing with the controller of the certificate of incorporation and an affidavit by the president of the association that the stock has been fully paid in, or that said property has been acquired, such association shall be entitled to the benefit of the appropriation. But no agricultural society shall be entitled to the benefits of the act which has \$500 surplus in its treasury or has within a year declared a dividend. All such associations are required to forward a statement to the controller on or before the first Monday in December of each year, giving fully the financial condition of said association. (Poe's Supp. Pub. Gen. Laws, art. 23, secs. 15a-15d, pp. 83-84.)

FARMERS' INSTITUTES.

A Department of Farmers' Institutes is established for the State of Maryland. Institutes are required to be held in each county of the State at least once a year, and oftener if desirable. They are placed under the management of a director appointed by the trustees of the Maryland Agricultural College. The director is required to be well versed in the profession of agriculture, and his duties and compensation are to be defined by the board of trustees. Such department of institutes is made a department of the Maryland Agricultural College. (Ibid., secs. 119-121, pp. 516-517.)

An appropriation of \$4,000 a year is made for the organization and support of this department. (Ibid., sec. 122, as amended by act of 1900, chap. 383.)

COMMERCIAL FEEDING STUFFS.

The term "concentrated commercial feeding stuffs" is defined, the manufacture and sale thereof regulated, and inspection and analysis thereof provided for. The enforcement of the act is lodged with the chemist of the Maryland Agricultural College, whose duty it is to report all violations of the act to the State's attorney of the proper county. Manufacturers and venders of such concentrated commercial feeding stuffs are required to affix to each package offered for sale a statement giving the name, brand, place of manufacture, name of manufacturer, number of net pounds in the package, source of food principles, and chemical analysis. (Acts of 1900, p. 287.)

STATE HORTICULTURAL DEPARTMENT.

A State Horticultural Department is established for the State of Maryland, under the direction of the board of trustees of the Maryland Agricultural College. The professors of entomology, vegetable pathology, and horticulture are respectively made State Entomologist, State Pathologist, and State Horticulturist. The purpose of the formation of the board is the prevention and suppression of plant diseases in the State of Maryland. Very careful regulations are made in the statute for the inspection of horticultural stock and products, and the places, vehicles, and methods of their storage and transportation. An annual appropriation of \$8,000 is made to carry out the provisions of the act, and reports are required to be made to the Governor and General Assembly, and also to be published and distributed with the bulletins of the agricultural college. (Poe's Supp. Pub. Gen. Laws, art. 48, secs. 51-65, pp. 374-381.)

Tree and fruit inspectors are provided for and their duties defined. (Ibid., art. 48, secs. 66-74, pp. 381-384.)

DISEASES OF ANIMALS.

The law provides for the destruction of animals dying of contagious or infectious diseases. (Laws of 1890, chap. 321.)

HORTICULTURE.

The State of Maryland has established a State Horticultural Department for the purpose of suppressing or eradicating the San Jose scale and other injurious insects, pests, etc. This department is under the control of the trustees of the agricultural college and experiment station,

All nurseries of trees, vines, etc., within the State must be inspected once in six months by the State entomologist or assistants.

The law provides for the conveyance of nursery stock from without and within the State. (Poe's Supp. Pub. Gen. Laws of 1890-1900.)

FERTILIZERS.

The regulations for the sale, inspection, and manufacture of fertilizers are under the Maryland Agricultural College.

The law provides that the Agricultural College shall analyze, free of charge, samples of fertilizers sent to it by purchasers, under certain conditions. The Agricultural College shall publish from time to time the results of analysis of fertilizers, giving their commercial value in dollars and cents, etc.

It is unlawful for manufacturers to defraud by labels or statements, and purchasers who are so defrauded may recover an amount equal to the purchase money of the said fertilizer and cost of suit, etc.

It is unlawful to adulterate fertilizers or use the trade-mark of another.

MASSACHUSETTS.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of the Governor, Lieutenant-Governor, Secretary of the Commonwealth, president of the agricultural college, secretary of the Board of Agriculture, one person appointed by and from the Massachusetts Society for Promoting Agriculture, one person appointed by and from each agricultural society receiving an annual bounty from the Commonwealth, and three other persons, to be appointed by the Governor with the advice and consent of the Council. (Pub. Stat., 1882, p. 20, sec. 1, as amended by acts of 1894, chap. 144.)

One-third of the appointed members of the board shall retire each year on the second Wednesday of January, according to their appointments. The vacancies thus created shall be filled by the Governor and Council, or by the agricultural societies as the offices were before filled, and the persons appointed to fill such vacancies shall hold office for 3 years. (Pub. Stat., 1882, p. 20, sec. 2, as amended by acts of 1896, chap. 254.)

The members of the board receive no compensation from the Commonwealth while engaged in their duties as such members, except personal expenses. The board shall meet at least once a year, and as much oftener as may be expedient. The board is empowered to investigate such agricultural subjects relating to the Commonwealth as it may think proper, fix dates for exhibitions of local agricultural societies, and regulate the returns required of such societies. The board is required to report annually to the General Court. The secretary of the board is authorized under direction of the board to appoint suitable agents to visit the different parts of the Commonwealth, to collect information as to all agricultural interests, and encourage the establishment of farmers' clubs and libraries, and to disseminate information by means of lectures and otherwise, and these agents are required to report annually to the secretary. (Pub. Stat., 1882, p. 20, sec. 3, et seq.)

The State Board of Agriculture is required to collect information with reference to abandoned farms, and an appropriation is made for the purpose. (Acts of 1891, chap. 280.)

There is a similar provision with reference to tuberculosis in the food products of animals. (Acts of 1891, chap. 118.)

The State board is permitted to set aside from the bounty allowed by the Commonwealth to any incorporated agricultural society such sum as may be recommended by the delegate from such society on the board, to be devoted solely to the premium list of such chartered poultry associations as such delegate shall recommend. (Acts of 1895, chap. 351.)

The State board shall elect an agent of the Dairy Bureau to oversee its work. (Acts of 1900, chap. 368.)

LOCAL AGRICULTURAL AND HORTICULTURAL SOCIETIES.

A State bounty to incorporated agricultural societies is provided for in an appropriation of \$200 to be paid by the State for every \$1,000 raised by said societies, under certain restrictions provided by the statute. (Ibid., chap. 114, sec. 1, as amended by acts of 1890, chap. 297, and acts of 1891, chap. 124.)

Societies claiming bounty are required to file certificates verified under oath by the president and treasurer, specifying the sum so raised. The amount of the bounty

shall be determined by the certificate filed the last preceding year; but the State Board of Agriculture, after hearing the society applying for the bounty, may by a two-thirds vote cut off the same. Societies claiming bounties must comply with the regulations of the State Board of Agriculture and make reports of their doings to that board. The bounty so received, or an equal sum, must be expended by the society receiving the same in the way of premiums or otherwise for the encouragement of agriculture, and such premiums shall be offered as prescribed by the State Board of Agriculture. Societies are required to offer premiums for the raising and preserving of forest trees suitable for ship timber. Such societies may hold exhibitions and regulate the same under the direction of the State board. Further provisions are also made for the policing of the same. (Pub. Stat. of 1882, chap. 114, sec. 2 et seq.)

Provision is made for the incorporation of 10 or more persons for the promotion of agriculture or horticulture and for improving cities and towns by the planting and cultivation of shade trees.

Farmers' clubs are permitted upon application to the State Board of Agriculture to receive copies of the publications of the State board, provided they make returns of their agricultural experiments to the State board. (Ibid., chap. 14.)

No agricultural association receiving a bounty from the State may mortgage or sell any portion of its real estate without an affirmative vote of two-thirds of the members of the society present and voting for that purpose, and without the approval of the State Board of Agriculture. (Acts of 1890, chap. 274.)

COMMERCIAL FEEDING STUFFS.

The director of the Hatch Experiment Station of the Massachusetts Agricultural College is directed to take samples of commercial concentrated feeding stuffs in the possession of any manufacturer, agent, importer, or dealer, not more than 2 pounds in weight, and cause the same to be analyzed, and publish the results of such analysis. Names of jobbers or local dealers shall not be published, but the commodity analyzed shall be described by its name, and the name of the manufacturer shall be given. (Acts of 1897, chap. 117.)

HORTICULTURAL SOCIETIES.

Real estate of horticultural societies used for offices, libraries, and exhibitions is exempt from taxation. (Sup. Pub. Stats., 1882-1888, chap. 176.)

DISEASES OF ANIMALS.

The State Board of Health has charge of animals affected with contagious and infectious diseases. (Laws of 1897, chap. 178, and Laws of 1899, chap. 293.)

A Board of Cattle Commissioners was created June 1, 1899, with power to make regulations concerning the extirpation, prevention, and suppression of contagious diseases among domestic animals, or concerning the care and treatment or destruction of affected animals, or animals which have been exposed to any contagious disease.

The law provides for the action of the board when it is discovered that animals have contagious diseases. The board makes rules to conform to the regulations of the United States Bureau of Animal Industry for the inspection of meat for export and for interstate commerce. (Laws of 1899, chap. 408.)

HORTICULTURE.

The State Board of Agriculture is authorized to execute any reasonable measure to prevent the spreading and extermination of *ocneria dispar*, or gipsy moth, and make regulations to that end. It is unlawful to bring this moth into the State. Two hundred thousand dollars was appropriated in 1898, together with unexpended balance, to exterminate the moths. (Laws of 1898, chaps. 31, 290.)

The State Board of Agriculture is authorized to exterminate the brown-tail moth. (Laws of 1898, chap. 544.)

In 1899 \$200,000 was appropriated toward expenses in the extermination of the gipsy and brown-tail moths. (Laws of 1899, chaps. 80, 268.)

FERTILIZERS.

Every lot of commercial fertilizer or fertilizer material offered for sale in the Commonwealth must be accompanied by a statement showing the ingredients, the address of the manufacturer, etc.; and a certified copy of this statement must be filed with the director of the Hatch Experiment Station, who causes an analysis to be made at least once a year, and collects an annual analysis fee of \$5 for each of the three essential fertilizing ingredients claimed to exist. (Acts of 1896, chap. 297.)

MICHIGAN.

STATE BOARD OF AGRICULTURE.

A State Board of Agriculture is established and incorporated, composed of the Governor, the president of the State Agricultural College ex officio, and six members to be appointed by the Governor, with the advice and consent of the Senate, on or before the third Wednesday in January of each biennial session of the legislature. They are required to meet quarterly at the State Agricultural College, and as much oftener as may be determined by them. At their first meeting they must elect a president and secretary and treasurer. If the secretary is elected from the board a vacancy is thereby created. The treasurer may or may not be a member of the board. The secretary is the executive officer of the board and is, under the direction of the board, charged with the promotion of all agricultural, horticultural, and live-stock interests of the State, the collection and circulation of information, and the distribution of seeds and plants. (Comp. Laws of 1897, chap. 67, secs. 1834-1842.)

The board also has supervision of the agricultural college. (Ibid., secs. 1850-1864.)

The State board is authorized to publish from time to time information of experiments made by the agricultural college. (Ibid., secs. 1868-1870.) It has also control of agricultural lands granted by Congress. (Ibid., chap. 53, secs. 1434 et seq.)

STATE AGRICULTURAL SOCIETY.

The State Agricultural Society is incorporated and authorized to hold not to exceed \$100,000 worth of real and personal property, exclusive of its library and scientific collections. It is required to report to the legislature annually. The society has power to award premiums and hold exhibitions, and may determine the place of holding the same. (Ibid., chap 157, secs. 5939-5946.)

LOCAL AGRICULTURAL SOCIETIES.

County aid to local agricultural societies is provided where any such society shall have raised annually the sum of \$100 for the promotion of agriculture and mechanic arts upon certificate under oath by the president and secretary of the society to the clerk of the board of supervisors. The board of supervisors, for the purpose of providing the appropriation, is authorized to levy a tax of not more than one-tenth of a mill on the value of the property. The sum of money derived from the tax should then be apportioned by the board of supervisors as may seem to them proper. (Ibid., secs. 5947-5952.)

The incorporation of county and town agricultural societies is authorized. Any such association is authorized to hold real estate for the purpose of its incorporation, including a farm not exceeding 160 acres of land, the total value of which shall not exceed \$100,000 if a county or district society, or \$20,000 if a town, village, or city society; also personal estate not exceeding \$35,000 for county and district societies and \$10,000 for town, village, or city societies. Conditions of membership are provided for, and further provision is made for the reorganization of such societies. (Ibid., secs. 5953-5970.)

Any five or more persons may associate for the purpose of forming a horticultural, agricultural, or pomological society, and become incorporated on complying with the provisions of the statute. (Ibid., secs. 5976-5983.)

All State and local agricultural and horticultural societies are exempt from taxation. (Ibid., sec. 3830.)

FARMERS' INSTITUTES.

The State Board of Agriculture is authorized to hold farmers' institutes and maintain courses of reading and lectures for the same. It is required to formulate regulations for the above purpose. Twenty or more persons in any county may organize a county institute on complying with the provisions of the law and adopting constitution and regulations agreeable to those made by the State Board of Agriculture as above provided. The State board is required to hold an annual institute in every county where such county institutes are organized, and provision is made for the expenses of the same, and the maintenance by the State board of the Farm Home Reading Circle course. The State board is also directed to publish the Farmers' Institute Bulletin containing accounts of the work done. (Ibid., secs. 1878-1882, as amended by acts of 1899, No. 137.)

HORTICULTURAL SOCIETIES.

Horticultural societies are organized under and subject to the same provisions above indicated for the formation of agricultural societies. There is a State Horticultural Society incorporated under Comp. Laws of 1897, sec. 5976.

DISEASES OF ANIMALS.

Three commissioners have the power to use means to prevent the spread of dangerous diseases among animals, place animals in quarantine, etc. (Ibid., sec. 4468.)

Animals are not permitted to enter or pass through the State if capable of diffusing or communicating diseases. (Ibid., sec. 4469.)

Provision is made for the transportation of Texas cattle into and through the State, and for the care of same. (Ibid., secs. 5650-5654.)

It is unlawful to drive sheep on a highway between the first days of May and November if infected with foot rot. (Ibid., sec. 5655.)

It is unlawful to import or drive into the State any sheep having any contagious disease. (Ibid., sec. 5657.)

HORTICULTURE.

It is unlawful for any person to keep trees infected with contagious diseases, or to offer to sell or ship any of the fruit from such trees, except the fruit of the plum, cherry, and pear tree, and it is provided that both tree and fruit infected shall be subject to destruction. (Laws of 1899, chap. 100; Comp. Laws, sec. 5681.)

It is the duty of township commissioners to mark and destroy infected trees. (Comp. Laws, secs. 5687-5694.)

The State Board of Agriculture appoints a State inspector, whose duty it is to inspect nurseries, issue certificates, order the eradication of infected stock, etc. (Ibid., secs. 5690-5699.)

The law provides for the conveyance of nursery stock into the State. (Ibid., sec. 5699.)

It is the duty of nurserymen, on or before the 1st of August each year, to apply to the State Board of Agriculture for inspection of stock and a license for its sale. A license fee is charged, which is good for one year. (Ibid., sec. 5700.)

It is unlawful for a nonresident of the State to import nursery stock or sell within the State without first having obtained a license and filing the required bond and a certificate of inspection. (Ibid., sec. 5701.)

BEES.

It is unlawful for any person to keep a colony of bees affected with the contagious malady known as foul brood. (Ibid., sec. 5663.)

The judge of the probate court may appoint a commissioner whose duty it is to examine apiaries, and if they are found with foul brood he may order their destruction. (Ibid., sec. 5669.)

SUGAR BOUNTY.

The State allows each manufactory having capacity of 2,000 pounds of sugar or more per day 1 cent per pound if the beets are raised within the State and the sugar contains at least 90 per cent crystallized sugar and be manufactured under the conditions of the act. (Ibid., secs. 1245-1252.) [This act was declared unconstitutional by the supreme court of Michigan in 1900.] (Michigan Sugar Co. v. Auditor General, 83 N. W. Rep., 625.)

MINNESOTA.

STATE AGRICULTURAL SOCIETY.

The State Agricultural Society consists: First, of three delegates to be chosen by each of the county and district agricultural societies, and in case they should fail to choose such delegates, then the president, secretary, and treasurer shall serve *ex officio*. If a county society does not exist and hold annual fairs in any county and any city thereof holds an annual street fair devoted to agricultural interests, then the street-fair association shall appoint three delegates, and in the event of its failure to do so, the president, secretary, and treasurer thereof shall serve as such. If there be more than one street fair held in the county, then the senior association shall elect the delegates. Second, all honorary life members which the society may elect by

two-thirds vote. Third, the presidents of the following societies and associations, to wit: the State Horticultural Society, the State Amber Cane Society, the State Dairy-men's Association, the State Forestry Association, the Southern Minnesota Fair Association, the State Poultry Association, the State Beekeepers' Association; the president and secretary of the State Farmers' Alliance and of the Minnesota Stock Breeders' Association; provided that all such societies are in active existence, hold annual fairs, have paid out in premiums as much as they receive from the State, and have 25 or more members. (Gen. Stat., 1894, sec. 2952, as amended by Acts of 1897, chap. 225, and Acts of 1899, chap. 304.)

The board of managers consists of six members, and their term of office is three years, two retiring each year. They elect a president, two vice-presidents, and two managers. The Governor and three persons appointed by him constitute a board of auditors to examine the affairs of the State Agricultural Society and report to the legislature at each session. The board of managers also elects a secretary and treasurer, who holds his office for a term of one year and is required to report to the Governor annually. The State society is authorized to hold annual exhibitions, and grant premiums, and receives an appropriation from the State for the purpose of paying them. (Gen. Stat., secs. 2953-2974.)

LOCAL AGRICULTURAL SOCIETIES.

The incorporation of local agricultural societies in a county or of two or more counties jointly is provided for. Among other things they are empowered to hold property, both real and personal, for the objects of their incorporation, and may lease county lands from the board of county commissioners, must file a copy of their constitution and by-laws in the office of the county registrar of deeds, elect delegates to the State Agricultural Society, and hold meetings. (Ibid., secs. 2975-2981.)

FARMERS' INSTITUTES.

A board of administration composed of two members of the board of regents of the State University to be selected by such board, the director of the Minnesota Experiment Station ex officio, the president of the State Agricultural Society, the State Dairy Association, and the State Horticultural Society, respectively, the latter three holding their offices three years each, is provided for the managing of farmers' institutes, and an appropriation of \$10,000 a year is made for the purpose of holding such institutes in each county of the State. The board of administration is empowered and required to appoint a suitable person Superintendent of Farmers' Institutes. It is the duty of the superintendent, under the direction of the board of administration, to provide competent lecturers and instruction and to arrange for the holding of farmers' institutes. The board of administration is required to publish a farmers' institute annual for free distribution throughout the State. Such institutes shall be held at times most convenient for the farmers, and shall, when practicable, continue not less than one nor more than three days. (Gen. Stat., secs. 3877-3888.)

DISEASES OF ANIMALS.

It is unlawful to convey along a public highway or elsewhere any diseased swine, or sell or give away any that have died with disease. (Laws of 1897, chap. 47.)

The control, suppression, and eradication of all contagious or infectious diseases is placed in the hands of the State Board of Health.

It is required that conspicuous notices shall be posted at quarantine places where diseased animals are kept. (Ibid., chap. 233.)

SUGAR BEETS.

Five thousand dollars was appropriated for the purchase of sugar-beet seed from Germany, and distribution by the State Treasurer to farmers, on payment of actual cost. (Ibid., chap. 146.)

MISSISSIPPI.

AGRICULTURAL FAIRS.

Property of agricultural and mechanical associations and of fairs is exempt from taxation. (Laws of 1894, chap. 30, sec. 1, par. Q.)

STATE FAIR.

The Mississippi State Fair Association was incorporated by an act approved March 1, 1884, but section 7 of the act of incorporation is repealed. (Acts of 1894, chap. 46.)

DISEASES OF ANIMALS.

The law provides that animals suffering with glanders must be killed, and such animals as have been exposed must be isolated and quarantined until danger is passed. (Laws of 1896.)

FERTILIZERS.

A tax is levied on fertilizer companies, graded according to the amount of capital stock. (Laws of 1898, chap. 5.)

There is an act which amends section 2065 of the Annotated Code of 1892, chapter 48, which adds another article, and defines the term "fertilizer." (Laws of 1896, chap. 65.)

The professor of chemistry at the Agricultural and Mechanical College is State chemist, and all fertilizers shall be analyzed by him, and the analysis shall be posted in a conspicuous manner where fertilizers are sold. The certificate of the manufacturer, giving the component parts of the fertilizer, shall be posted. (An. Code of 1892, chap. 48, sec. 2066.)

Misrepresentation in the sale of fertilizer, proven by analysis, shall result in the contract made for the sale of it being made void. (Ibid., sec. 2078.)

MISSOURI.

STATE BOARD OF AGRICULTURE.

A State Board of Agriculture is incorporated, composed of the Governor of the State, the dean of the Agricultural College, and the State Superintendent of Public Schools ex officio, and 1 member from each Congressional district to be appointed by the Governor. The term of office of members is 3 years, and they are to be divided into classes so that one-third shall retire annually. They are to serve without compensation except the necessary expenses of attending meetings of the board. Only a majority of the board shall belong to one political party. The officers of the board shall be a president, vice-president, secretary, assistant secretary and treasurer, to be elected by the board, and they shall hold office for one year. The secretary and treasurer shall not be members of the board. The secretary is required to be a practical agriculturist. Annual meetings are required to be held, and the board may meet as much oftener as is necessary. The duties of the board are to have general supervision over all institutions in the State which have to do with agriculture, to be a board of examiners for the experiment station, to have charge of the veterinary service of the State, to gather crop and meteorological statistics and other agricultural, horticultural, and stock statistics and publish the same in bulletins; to hold farmers' institutes, and to make an annual report to the generally assembly of the State. (Code of 1899, chap. 67, secs. 4697-4704.)

The State Board of Agriculture is made a board of directors of the State fair. (Ibid., sec. 7406.)

LOCAL AGRICULTURAL SOCIETIES.

Corporations may be formed to encourage agriculture and improvement of stock, and for this purpose to establish fair grounds. (Ibid., sec. 1319.)

Provision is made for the incorporation of county agricultural societies upon petition of 50 freeholders to the county court in the county in which a majority of them reside. Such corporation may own lands to the extent of 100 acres and buildings thereon, and any other property not exceeding \$50,000 in value. The capital stock shall not exceed \$100,000 and the shares thereof \$25 each. Any number of petitioners exceeding 20 may organize such a corporation by the election of 9 directors for the term of 1 year. The board of directors so elected shall choose one of their number president and some other persons as secretary and treasurer and for such other offices as may be necessary, and may prescribe their duties. The county court is authorized to appropriate not exceeding \$150 per annum to such incorporated societies, provided the sum is expended in premiums at exhibitions of any such society and under certain restrictions mentioned in the act. The board of directors is required to make an annual report to the stockholders and also to the State Board of

Agriculture. The property of the corporation shall be held only for erecting buildings in suitable inclosures for exhibitions of the society. Conditions of membership and dissolution of such societies are provided and police powers conferred. (*Ibid.*, chap. 67, secs. 4709-4724.)

STATE HORTICULTURAL SOCIETY.

A State Horticultural Society is incorporated, to be composed of persons interested in horticulture who pay a membership fee of \$1 a year or \$10 for life membership. There is an executive board of such society, composed of the president, vice-president and second vice-president, secretary, and treasurer, who shall be annually elected, together with the Governor of the State, who is a member *ex officio*. This board shall have charge of all transactions of the society, and members of the board receive no compensation except necessary expenses in attending meetings. The secretary of the board receives a salary of \$800 a year. (*Ibid.*, sec. 4706.)

STATE POULTRY ASSOCIATION.

Similar provision is made in reference to the State Poultry Association, with the exception of the provision for the salary of the secretary. (*Ibid.*, sec. 4708.)

STATE FAIR.

A State fair is to be held annually under the direction of the State Board of Agriculture, who are required to assemble and elect a president and vice-president for the State fair, to be chosen from among their own number, and a secretary and a treasurer, who shall be chosen from outside. These officers shall hold their offices 1 year. The statute prescribes the steps to be taken by cities competing for the location of the fair, and the State board is authorized to select the site. The legislature provides a fund for premiums to be awarded by the State Board of Agriculture.

The State board is required to make rules and regulations for such exhibitions, and it is also empowered to provide for separate exhibitions of poultry in its discretion. The State board is required to report biennially to the legislature. (*Ibid.*, chap. 105, secs. 7405-7418.)

DISEASES OF ANIMALS.

No farm stock affected with any contagious disease shall run at large on highways or uninclosed lands. (*Rev. Stat.*, 1889, sec. 351.)

Cattle diseased with Texas fever or hogs affected with cholera shall not be brought or sold or offered for sale in the State. Provision is made for disposing of carcasses of diseased animals, and penalties are prescribed for noncompliance with the law. (*Ibid.*, 2322-2328.)

HORTICULTURE.

Provision is made for the establishment of a fruit experiment station in south Missouri. An inspector appointed by the Governor is under the control of the board of trustees of the station, and it is his duty to visit sections of the State and prescribe remedies for diseased trees. On his recommendation the board may, if it so desires, order the destruction of diseased trees, the expense to be paid from the funds of the board. (*Ibid.*, chap. 66, secs. 4725-4733.)

FERTILIZERS.

The law prescribes the conditions of sale of commercial fertilizers. The director of the experiment station shall analyze commercial fertilizers valued at over \$10 a ton, and the label shall set forth the name of the manufacturer, brand, and essential ingredients. Such labels must be attached to each and every lot sold or offered for sale. The director shall receive \$10 for each brand analyzed and \$1 a hundred for the labels.

The director is authorized to take samples wherever found and analyze them and enforce the law, and to analyze fertilizers for purchasers in the State without charge. (*Laws of 1893*, chap. 171.)

MONTANA.

BUREAU OF AGRICULTURE, LABOR, AND INDUSTRY.

The legislature is empowered to provide for a Bureau of Agriculture, Labor, and Industry, to be located at the seat of government, and to be under the direction of the commissioner appointed by the Governor and confirmed by the Senate. The

commissioner shall hold his office 4 years, and his compensation shall be as provided by law. (Const., art. 8, sec. 1.)

The Bureau of Agriculture, Labor, and Industry is provided for under the direction of the commissioner, to be appointed by the Governor, and a chief clerk, to be appointed by the commissioner. The commissioner is to hold office for 4 years, but may be removed by the governor for neglect, incompetence, or malfeasance in office. He is required to collect and systematically arrange statistical details relating to agriculture and other departments of industry in the State and report annually to the governor. He is empowered to administer oaths, compel the attendance of witnesses, and examine them. His salary is \$2,500 a year, and that of the chief clerk \$1,500. The commissioner is required to keep his office at the seat of government. (Laws of 1897, p. 110, repealing Political Code, secs. 760-777.)

STAT FAIR.

The Montana State Fair Association is granted a franchise to hold a State fair at Butte for a period of 10 years, on condition that it shall not fail to hold such fair 2 years in succession. (Laws of 1899, p. 100.)

DISEASES OF ANIMALS.

It is unlawful to sell or offer for sale any animal having glanders or any contagious disease, and owners must kill such animals. (Rev. Stat., 700-701.)

Diseased animals must not run at large, and affected animals must be confined 6 miles away from other stock. (Ibid., 3063.)

The prevention of the spread of disease is provided for. (Ibid., 3030-3046.)

There are many laws regulating the herding and branding of animals. (Ibid., 1163-1191.)

The Governor is authorized to appoint a State Live-stock Inspector, whose duty it is to investigate the nature, causes of, and remedies for diseases of cattle and live stock, and his further duties are prescribed.

Stock from infected districts can not enter the State without a certificate showing good health. (Rev. Stat., 2045-2060.)

STATE BOARD OF HORTICULTURE.

The State is to be divided into 5 horticultural districts. A State Board of Horticulture shall be appointed, consisting of the Governor ex officio and one horticulturist from each district to be appointed by the Governor. The appointed members shall not be connected in any way with any nursery or the handling of its products. The appointed members hold office for 4 years. The board is authorized to appoint a secretary, to hold office at its pleasure, and prescribe his duties. It is authorized to hold public meetings in conjunction with horticultural societies, and may publish and distribute the proceedings of such meetings. Semiannual meetings of the board are provided for, and it is required to meet as much oftener as may be necessary. Their offices shall be located as determined by them. The board is empowered to appoint from their own number or otherwise an inspector in each district to be known as the inspector of fruit pests, who must be a practical horticulturist. The duties of such inspectors and also those of special fruit inspectors authorized to be appointed are very clearly defined in regard to the inspection of nursery stock, and of places, packages, and vehicles having to do with the production, packing, storing, and transportation of horticultural products. Penalties are prescribed for violation of the law. (Laws of 1899, p. 34, as amended by laws of 1901, p. 52.)

The incorporation of agricultural and horticultural societies is provided for. (Political Code, sec. 393, par. 4.)

The State Board of Horticulture may prescribe regulations for inspection and disinfection to prevent the spread of contagious diseases among fruits and fruit trees, and for the extirpation of such diseases and pests. It is the duty of the inspectors to visit nurseries, etc., and see that the regulations are complied with, and they have power to destroy.

It is unlawful for any transportation company to deliver nursery stock without an inspector's certificate. (Laws of 1899, chap. 70.)

SUGAR BOUNTY.

The law provides for the payment of 1 cent a pound for every pound of sugar manufactured from sugar beets grown in the State, for which purpose \$5,000 was appropriated. (Rev. Stat., 3283, 3284.)

NEBRASKA.

STATE BOARD OF AGRICULTURE.

The members of the State Board of Agriculture serve for 2 years, the terms of one-half of their number expiring annually. Their officers consist of a president, vice-president, secretary, treasurer, and such others as the board shall think proper. These officers are elected for a term of 1 year each at the annual meeting held on the third Tuesday of January. At such annual meeting delegates from the county districts shall meet with the board and are for the time being made ex officio members of the board. The board is also charged with the supervision of the State fair, which is to be annually held near the seat of government. An annual report is required to be made to the Governor, and provision is made for the distribution of the same. Appropriation from the State treasury is made for premiums to be paid by the board at the State fair. (Comp. Stat., chap. 2, secs. 331-335.)

LOCAL AGRICULTURAL SOCIETIES.

Twenty or more persons residing in any county may become an agricultural society entitled to county aid by associating together, adopting a constitution and by-laws agreeable to the rules of the State Board of Agriculture, electing proper officers, and raising not less than \$50, and certifying such facts to the county clerk. The county board of such county is thereupon required to appropriate a sum equal to 3 cents for every inhabitant in the county. This appropriation is made on condition that the society holds an annual fair of at least 3 days' duration. Such societies are required to hold annual exhibitions and offer premiums at the same. They are required to report their proceedings annually to the State Board of Agriculture, and to publish an abstract of their treasurer's account and a list of awards. They may hold not exceeding 160 acres of land for exhibition purposes. Provisions are made by the statute for policing of fair grounds. Provision is made for aid by the county board to such societies in a sum not exceeding \$100 for every 1,000 inhabitants of the county, but not in any case to exceed \$1,000, the same to be expended in keeping fair grounds. This aid is granted under certain conditions prescribed in the statutes. (Ibid., secs. 342-350.)

STATE HORTICULTURAL SOCIETY.

The State Horticultural Society is required to meet at the seat of government annually in January. Its officers are to correspond in number and title with those of the State Board of Agriculture, and are elected annually for the same terms of office. The society is required to encourage the organization of district and county societies, and to further in every way the fruit-growing interests of the State. Provision is made for an annual report to the Governor of the State, and an appropriation is made to be used by the State society in the payment of premiums and for the support of the society. (Ibid., secs. 336-340.)

DISEASES OF ANIMALS.

It is unlawful for any person to sell or permit to run at large diseased animals. (Laws of 1899, chap. 98.)

It is unlawful and punishable by fine for any person to sell or use diseased swine for the purpose of being manufactured or rendered into lard or oil. The law makes it obligatory for any person keeping swine, if there is an outbreak of contagious disease, to quarantine such premises, and provides for the immediate destruction of dead animals.

It is unlawful to use, sell, or permit to run at large a horse, mule, or ass diseased with glanders. (Laws of 1867, chap. 74.)

The law provides for the inspection of cattle, and prescribes the duties of the inspector, and provides for the branding of sheep, etc. (Laws of 1883, chap. 3; Comp. Stat. of 1897, pp. 75-78.)

BEES.

It is unlawful to keep any bees infected with foul brood or other infectious diseases, etc. (Laws of 1885, chap. 3.)

The law provides for the destruction of bees, comb, or honeys infected with foul brood or other infectious diseases, etc.

The law covers the inspection, destruction, etc., of apiaries, and provides for the issuance of certificates. (Comp. Stat. of 1897, p. 117.)

It is unlawful to steal honey or to destroy bees by poison, etc. (Comp. Stat. of 1897, sec. 6734.)

NEVADA.

DISEASES OF ANIMALS.

It is the duty of the board of county commissioners to appoint inspectors, whose duty it is to examine sheep and dip them if found diseased.

Sheep must not be brought into the State or moved from one county to another without having been inspected. (Rev. Stat., 810-824.)

It is unlawful to drive over any road or highway any diseased animals. (Comp. Laws, 1861-1900.)

NEW HAMPSHIRE.

STATE BOARD OF AGRICULTURE.

A State Board of Agriculture is provided for, consisting of the Governor *ex officio* and 10 practical citizens, one from each county, to be appointed by the Governor with the advice of the Council. The term of office is 3 years, and they receive no compensation for their services except that expenses necessarily incurred in the discharge of their duties are to be paid by the State. They are required to choose the secretary, who is to receive an annual salary of \$1,500, and their office is to be at the seat of government. They are empowered to hold bequests and donations in the interest of agricultural education and husbandry. It is their duty to promote agriculture, stock raising, and horticulture, to interest the people therein, to hold farmers' meetings in the different counties, to encourage the formation of farmers' clubs, agricultural and horticultural societies, to encourage the invention, introduction, and improvement of labor-saving agricultural implements, to collect seeds, plants, trees, and shrubbery, and distribute them as provided by law. They shall act as commissioners on diseases of domestic animals when directed by the Governor. They are required to report annually to the Secretary of State. (Pub. Stat., 1901, chap. 12, secs. 1-12.)

FARMERS' CLUBS AND AGRICULTURAL CORPORATIONS.

After paying expenses of analysis of fertilizers the balance of license fees received for the same shall be devoted to defraying the expense of farmers' clubs under the direction of the State Board of Agriculture. (Ibid., chap. 126, sec. 24.)

Five or more persons of lawful age are authorized to form a corporation for the purpose of promoting agriculture. (Ibid., chap. 147, sec. 1, Par. VIII.)

DISEASES OF ANIMALS.

It is the duty of the State Board of Cattle Commissioners to investigate as to the existence of tuberculosis, pleuro-pneumonia, and other infectious diseases among cattle or sheep and to quarantine such animals. If animals are killed by order of the board, the owner shall receive one-half of the appraised value under certain restrictions.

The law prohibits transportation companies from bringing into the State, or transporting within the State, diseased animals.

The Governor may forbid the entering of cattle from diseased localities. (Laws of 1891, chap. 40; laws of 1893, chap. 33.)

NEW JERSEY.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of the members of all agricultural and horticultural societies, farmers' clubs, granges of the Patrons of Husbandry, and other agricultural associations in the State. The officers of the State Board of Agriculture shall be a president, vice-president, and treasurer, to hold office for a term of 1 year. A secretary is also to be elected for a term of 5 years. The board of directors shall consist of—

Class A: Two members of the Board of Managers of the Geological Survey, to be appointed by the said board; two members of the Board of Visitors of the State Agricultural College; their term of office shall be 1 year.

Class B: The professor of agriculture in the State Agricultural College, the president and director of the experiment station, the master and secretary of the State grange of the Patrons of Husbandry; their term of office shall be 2 years.

Class C: Two delegates from the State Agricultural Society, the State Horticultural Society, the Cranberry Growers' Association, the State Poultry Association, and each county board of agriculture which may associate itself with the State board, respectively, and one delegate from each Pomona grange.

The president, vice-president, treasurer, secretary, and three other members to be elected annually at the same time constitute the executive committee of the board.

Powers and duties.—The State Board of Agriculture is empowered to investigate all subjects relating to the improvement of agriculture in the State, and to receive donations and bequests for that purpose and also for agricultural education; also to encourage the formation of agricultural and horticultural societies of the several counties; and provision is made for the representation of county societies in the State board. The executive committee of the State board is authorized to have experiments made concerning diseases of animals and remedies therefor, to employ lecturers before the board and in the different counties of the State, to apportion not less than \$300 annually to the State Agricultural Society, and to apportion sums of money to the several county boards of agriculture. It is made the duty of the State Board of Agriculture to appoint three persons to act in conjunction with a like number appointed by the New Jersey State Agricultural Society as a premium committee in the award of premiums at the State fair. (1 Gen. Stat., pp. 7-11, secs. 3-33.)

STATE AND LOCAL AGRICULTURAL SOCIETIES.

The State Agricultural Society is incorporated for the promotion of agriculture, horticulture, live-stock raising, and household arts, and is allowed to hold not to exceed \$10,000 worth of property. (Ibid., p. 7, secs. 1 and 2.)

The membership of county boards of agriculture shall consist of all the members of the agricultural and horticultural societies of the county, and such others as they shall elect. Where there are no such associations, any number of citizens not less than 10 may organize one by complying with the provisions of the statute and filing a certificate of organization with the State board. Provision is made for the organization of such county boards in counties where there are one or more such associations. Such county boards are required to report annually to the State board. (Ibid., p. 8, sec. 14.)

Corporations heretofore and hereafter to be organized for the purpose are empowered to hold agricultural, horticultural, and mechanical fairs and exhibitions, and award premiums to competitors at the same, and certain police powers are conferred upon them. (Laws of 1896, chap. 129.)

An annual appropriation of \$700 is made to the State Horticultural Society. (Laws of 1899, chap. 78.)

COMMERCIAL FEEDING STUFFS.

The term "concentrated commercial feeding stuffs" is defined, and the analysis, inspection, labeling, and regulation of the sale thereof within the State is provided for by the statute, and penalties are prescribed for violation thereof. (Laws of 1900, chap. 29.)

DISEASES OF ANIMALS.

The law provides that if the State Tuberculosis Commission orders the slaughter of diseased cattle, the owner, by agreement with the commission, shall receive three-quarters of the valuation, not exceeding \$40 for each animal. (Laws of 1898, chap. 148.)

It is unlawful to import dairy cows and neat cattle for breeding purposes, unless they are accompanied by a certificate from an inspector of the State from which they come, certifying that they are free from disease. Common carriers are prohibited from bringing cattle into the State without a certificate. If they are imported without a certificate the State Tuberculosis Commission shall have them examined, subject them to tuberculin test, and, if found with indications of tuberculosis, slaughter them; and no indemnity shall be paid to owners. (Laws of 1899, chap. 181.)

HORTICULTURE.

It is obligatory for all gardeners, horticulturists, farmers, nurserymen, etc., to keep their premises free from all injurious insects. The executive committee of the State Board of Agriculture appoints 3 commissioners in each county whose duty it is to

give notice to persons on infested premises to eradicate the pests within 5 days; and if not done, to report to the State entomologist, whose duty it is to take measures to prevent the spread of injurious insects.

The law provides that nurserymen and growers of plants shipping goods into the State shall attach to each package a certificate obtained from the authorized authorities, setting forth that the same have been properly inspected and found free from San Jose scale or other dangerous insects. If the law is not complied with, the goods may be destroyed or reshipped to consignee at the expense of the common carrier.

Florists are exempt. (Laws of 1898, chap. 104.)

NEW MEXICO.

LOCAL BOARDS OF HORTICULTURAL COMMISSIONERS.

On petition of 15 or more freeholders and possessors of orchards in any county setting forth that disease or insect pests exist, and praying that a commission be appointed, the board of county commissioners in such county will appoint 3 commissioners to be known as the board of horticultural commissioners. The term of office of such commissioners after the first board is appointed shall be for 3 years, 1 of them retiring each year. Said county board of horticultural commissioners is required to enforce the statute relating to the inspection of horticultural stock, products, places, packages, and vehicles having to do with the same, to prevent and suppress disease thereof, and is required to report to the board of county commissioners monthly. (Comp. Laws of 1897, secs. 707-713.)

DISEASES OF ANIMALS.

There are 175 sections of laws in New Mexico relating to domestic animals, referring to branding for identification, the duty of drovers, owners, etc.

It is the duty of the Sheep Sanitary Board, which consists of 3 practical sheep raisers and owners, to appoint inspectors, who shall dictate quarantine and sanitary measures for the prevention of the spread of disease among sheep.

Sections of the act define the duties of persons bringing sheep into the Territory, and provide for quarantine, inspection fees, and penalties. (Comp. Laws of 1897, as amended by chap. 33, Laws of 1899.)

The Sanitary Board of 5 members is empowered to prevent the introduction into the Territory or spread of Texas fever, pleuropneumonia, tuberculosis, or any other contagious or infectious disease, and to take measures for stamping out such diseases. (Comp. Laws of 1897, secs. 182-185.)

The following sections are referred to in brief:

- Quarantine against Texas fever, section 187.
 - Proclamation by the Governor, section 188.
 - Certificate of health, how granted, section 193.
 - Driving cattle without certificates, section 194.
 - Expenses of the inspection a lien, section 195.
 - Other diseases than Texas fever, section 197.
 - Indemnity, section 198.
 - Old law in force, section 207.
 - Rules for slaughterhouses, section 208.
 - Owners of cattle to hold them for inspection, section 210.
 - Railroad company to be furnished with certificates, section 211.
 - Violations of the act, section 219.
 - Boards may employ veterinarian, section 226.
 - Appraisement before slaughter, section 228.
- (C. L. 1897, sections 181 to 231, laws of 1899, chapter 53.)

HORTICULTURE.

The law provides that when the county commissioners have knowledge that orchards and nurseries are infested with insects, etc., it is their duty to appoint a county board of horticultural commissioners, whose duty it shall be to make inspections of orchards, etc. They shall notify the owner, who is required to disinfect or destroy the same within a specified time. If the owner fails to destroy, the board may declare the premises a public nuisance, and abate the same. The expense may be a lien upon the real property of the defendant. (Comp. Laws of 1897, secs. 707-713.)

The county commissioners may, upon a petition by 25 fruit growers or owners, when there is danger of the introduction in said county of insects destructive to fruit by the shipment of fruits into said county, by proclamation, prohibit the shipment of fruit into said county. (Laws of 1899, chap. 55.)

NEW YORK.

DEPARTMENT OF AGRICULTURE.

A department of the State government is created, to be known as the Department of Agriculture, and it is charged with the duty of executing the laws relating to agriculture and agricultural products. The chief of the department is a Commissioner of Agriculture, and he is to be appointed by the Governor with the advice and consent of the Senate for the term of three years. He is to receive an annual salary of \$4,000, and is allowed not to exceed \$500 for necessary expenses in the discharge of his duties. He is required to make an annual report to the General Assembly. He may appoint a Director of Farmers' Institutes and such clerks, assistant commissioners, chemists, agents, and counsel as may be necessary for the proper administration of the department, and may fix their compensation. The office of the department shall be at the seat of government. (Gen. Laws, chap. 33, art. 1, sec. 2; act of Apr. 10, 1893.)

STATE AND LOCAL AGRICULTURAL SOCIETIES.

Ten or more persons may form a county or town agricultural corporation for promoting horticulture, agriculture, and the mechanic arts by making, acknowledging, and filing a certificate stating the objects of the corporation, the territory in which it is to operate, the place of its principal office, and the number of directors, not less than 6 nor more than 12. There shall be but one county society in a county and one town society in a town. Joint societies may be formed for two or more towns, and there may be also separate town societies for the same towns. Such corporations and also the American Institute in New York City and the New York State Agricultural Society are required to hold annual fairs. County and town societies may, by two-thirds vote, fix a place of holding such fairs, and are given power to make regulations and award premiums. Authority is given to the board of directors to appoint police officers for such exhibitions, and a justice of the peace in the county may hold a court of special sessions on the ground with jurisdiction over the same. Such county and town corporations may by majority vote, and filing a certificate in the office of the county clerk of the county where their certificates of incorporation are filed, fix the amount of the capital stock, which shall be not less than \$5,000 nor more than \$40,000, each share of which shall be of the par value of not less than \$10. Corporations so organized, whose capital stock entitles holders to dividends, are subject to the provisions of the business, stock, and general corporation laws.

County agricultural corporations are required to report annually to the secretary of the New York State Agricultural Society. The presidents of all such county societies or delegates to be chosen by them annually shall be ex officio members of the New York State Agricultural Society. (2 Rev. Stat., 2d Ed., 1896, pp. 2000-2002.)

Real property of an agricultural society used by it for exhibition purposes is exempt from taxation. (3 Rev. Stat., 2d Ed., 1896, p. 3092, par. 10.)

Agricultural and horticultural corporations are also exempt from the franchise tax required to be paid by other corporations. (Ibid., p. 3134.)

Agricultural societies having grounds in any county in the State with a population of not less than 300,000 or more than 600,000 are authorized to lease such grounds as they may not need for any purpose except running races. (Laws of 1894, chap. 640, sec. 91; Laws of 1898, chap. 194.)

STATE FAIR.

The conveyance by the New York State Agricultural Society to the State of its property at Geddes, Onondaga County, is accepted and confirmed, and such property is placed under the management of the State Fair Commission. The commission is constituted of 11 members, including the Lieutenant-Governor and Commissioner of Agriculture ex officio. The remaining 9 members shall be appointed by the Governor, 1 of whom shall be a member of the New York State Grange, 1 a member of the New York State Association of County Agricultural Societies, and 1 a member of the Union Association of Agricultural Societies. After the appointment of the first board, subsequent appointees shall hold office for a term of 3 years. It is made the duty of the State Fair Commission to hold a State fair annually, and give notice of the time of holding same in January preceding. The commission is empowered to make all needful rules and regulations for the conduct of such fairs, and may appoint a superintendent and other employees, and fix their duties and compensa-

tion. The commission is required to receive all moneys payable to the State on account of such fair, make all disbursements therefrom, also to receive all appropriations made by the legislature, and to pay to the State treasurer any balance remaining therefrom, rendering an itemized account of all such moneys to the State treasurer. The sum of \$1,000 is to be annually awarded to the county or local agricultural associations making the best exhibits, provided such associations do not hold their exhibitions at the same time as the State fair. (Laws of 1900, chap. 346.)

Distribution of State aid to agricultural societies.—Distribution of State aid to agricultural societies is regulated. (Laws of 1893, chap. 338, secs. 88, 89, as amended by Laws of 1894, chap. 24; Laws of 1896, chaps. 587, 820; Laws of 1896, chap. 221; Laws of 1897, chap. 589; Laws of 1898, chap. 494; Laws of 1900, chaps. 87, 339, 394; Laws of 1901, chap. 144.)

The appropriation for such societies in 1901 was \$66,000. (Laws of 1901, chap. 644.)

FARMERS' INSTITUTES.

The sum of \$25,000 is appropriated for the giving of instruction throughout the State by lectures, schools, and other university-extension methods, publishing bulletins for free distribution under the direction of the College of Agriculture of Cornell University. (Laws of 1897, chap. 128.)

The appropriation for farmers' institutes under the direction of the Commissioner of Agriculture in 1901 was \$20,000. (Laws of 1901, chap. 644.)

COMMERCIAL FEEDING STUFFS.

The term "concentrated commercial feeding stuffs" is defined. Manufacturers of commercial feeding stuffs are required to affix to every package thereof sold, or give with every bulk lot, a printed statement certifying the number of net pounds offered for sale; the name, trade-mark, or brand; the name and place of business of the manufacturer or shipper, and a chemical analysis. Retail dealers shall furnish a similar statement when requested. A certified copy of the above statement is required to be filed annually with the director of the experiment station at Geneva, and when requested shall be accompanied by a sample of the feeding stuff. Manufacturers of such feeding stuffs are required to pay a license fee of \$25 for every brand of feeding stuff manufactured. Every brand of feeding stuff offered for sale in the State shall be analyzed under the direction of the director of the Geneva experiment station from samples of not less than 2 pounds weight, and the method of obtaining such samples is prescribed. The enforcement of the act is lodged with the Commissioner of Agriculture. (Laws of 1899, chap. 510, as amended by Laws of 1900, chap. 79.)

DISEASES OF ANIMALS.

The commissioner is authorized to take measures to suppress and prevent the spread of disease among domestic animals, and local boards of health shall give notice to the commissioner of the existence of the same in their localities. The commissioner is required to publish a notice of warning in the locality where such diseases exist, ordering persons having animals to take such precaution against the spread of such diseases as he may prescribe. He is empowered to quarantine farms; cause animals to be detained and destroyed; employ veterinary surgeons; make regulations for the disinfection of places, buildings, vehicles of transportation, or vessels; call upon the sheriffs and other peace officers to assist in the enforcement of his regulations, and he is specially empowered to quarantine hydrophobia. Provision is made for the slaughtering of tuberculous animals, and the testing of cattle supposed to be tuberculous with tuberculin. Compensation is to be made by the State to the owners of diseased animals destroyed in the suppression of contagious diseases, and provision is made for post-mortem examination of slaughtered animals supposed to have had tuberculosis. The commissioner may cooperate with the Federal authorities for the prevention and suppression of diseases of animals, and the statute defines the rights of Federal inspectors in the State, and authorizes them to call upon State authorities for aid in enforcing the Federal regulations. (Laws of 1893, chap. 33, art. 4, sec. 60, as amended by Laws of 1900, chap. 118, and Laws of 1901, chap. 321.)

HORTICULTURE.

The keeping of horticultural stock infected with disease or pests is made unlawful. It is made the duty of the Commissioner of Agriculture to prevent and suppress all

diseases and pests of fruit, and he is authorized to inspect all horticultural stock and places, etc., at least once a year unless the same have been inspected by the Federal authorities. A certificate shall be issued by him to the owner of such stock stating that the stock is apparently free from disease, if that be the fact. It is made a misdemeanor to be wrongfully in possession of any such certificate or to send out or deliver nursery stock subject to pests and diseases unless the owner thereof has such certificate. All nursery stock shipped by any transportation company shall be accompanied by a certificate of inspection either of the State or of the United States. Provision is made for the destruction of infected nursery stock upon notice to the owner. The provisions of the act do not apply to florists' greenhouse stock. (Laws of 1898, chap. 482.)

Transportation companies are required to notify the Commissioner of Agriculture of the receipt of any consignments of nursery stock. (Laws of 1901, chap. 417.)

FERTILIZERS.

Persons exposing for sale any commercial fertilizers in the State the selling price of which exceeds \$10 per ton shall affix to every package thereof, in a conspicuous place, a statement giving the number of net pounds in the package, the name, brand, and trade-mark of the same, the name and address of the manufacturer, and a chemical analysis. If the fertilizers are sold in bulk, such a statement shall accompany every lot. Before any commercial fertilizer is sold in the State the manufacturer or dealer in the same shall file such a statement annually with the experiment station at Geneva. The director of the experiment station at Geneva is charged with the enforcement of the act, and it is a violation of the statute if any section of the statement be false. (Laws of 1896, chap. 955.)

PARIS GREEN.

Manufacturers of paris green made in the State and dealers in paris green manufactured outside of the State are required, before such paris green is offered for sale within the State, to submit to the Commissioner of Agriculture a statement setting forth the brands to be sold, the number of pounds contained in each package in which it is put upon the market, the name of the manufacturer, and the amount of arsenic contained in the paris green; and this statement shall be considered as a guaranty that the package contains such amount. Manufacturers and dealers having filed such statement shall be entitled to receive a certificate from the Commissioner of Agriculture that they have complied with the foregoing provision. Paris green and similar products offered for sale shall contain at least 50 per cent of arsenious oxide. The director of the Geneva experiment station is required to cause to be analyzed every brand of paris green offered for sale within the State, and penalties are prescribed for the violation of the act. (Laws of 1896, chap. 113.)

BEES.

The keeping of bees infected with foul brood is prohibited, and it is made the duty of every bee keeper, as soon as he becomes aware of such disease in his apiary, to notify the Commissioner of Agriculture. It is made the duty of the commissioner to cause such apiary or apiaries to be examined by competent persons to be designated by him, and the commissioner and his agents are empowered to treat and destroy, if necessary, infected bees, and disinfect and destroy, if necessary, infected hives and appliances. It is made unlawful to keep diseased bees, hives, or appliances, to expose other bees to disease, or to sell or give away diseased bees, hives and honey, or appliances. (Laws of 1899, chap. 223.)

The spraying of fruit trees in blossom with poisonous substance is prohibited, but this provision does not apply to experiment stations while conducting experiments. (Mis. Laws of 1900, chap. 171.)

SUGAR BOUNTY.

The Commissioner of Agriculture is authorized to apportion moneys appropriated by the State for the promotion of beet-sugar production. Persons or concerns engaged in the manufacture of beet sugar, to be entitled to bounty, must register with the Commissioner of Agriculture, giving the name and location, and capacity of the factory, and the time when the manufacture is to begin or began. All beets used in the manufacture of such sugar must have been grown in the State of New York. The grower thereof must have received not less than \$5 a ton, and the sugar manufactured must contain at least 90 per cent of crystallized sugar. Packages containing sugar so manufactured are required to be branded, showing the quantity and the

quality. The commissioner is given power to appoint inspectors to carry out the provisions of the act, and their duties and compensation are prescribed by the law. A weighman is to be appointed by the commissioner in a factory where the output is 2,000 pounds or more of sugar per day, and his duties are to weigh all beets received and keep account of the same, and his weights shall be accepted by both buyer and seller. His compensation is prescribed by the statute. The commissioner is required to make detailed statements of each person or concern entitled to receive State bounty and the amount of sugar manufactured by each, and he shall apportion the bounty among them according to the amount of sugar manufactured of the grade described in the statute. Not more than 1 cent a pound bounty shall be paid in any one year. (Laws of 1897, chap. 500, as amended by Laws of 1899, chap. 303, sec. 1, and Laws of 1899, chap. 101, sec. 1.)

The sum of \$50,000 was appropriated for the encouragement of the culture of sugar beets. (Laws of 1900, chap. 344.)

NORTH CAROLINA.

STATE BOARD OF AGRICULTURE.

The Department of Agriculture, Immigration, and Statistics is created, under the control of the State Board of Agriculture. The board is to be composed of 9 members, each holding office for a term of 6 years, and one-third retiring every 2 years. The board shall meet at the seat of government twice a year, and oftener if necessary, for the transaction of business. The members receive \$4 a day each for not exceeding 16 days' attendance on the sessions of the board, and mileage to and from the same at the rate of 3 cents a mile. A Commissioner of Agriculture is also provided for, to be elected by the electors of the State at the general election and hold office for a term of 4 years. The duties of this commissioner and of the secretary also provided for are prescribed by the State board. The board is required to hold in trust and administer donations or bequests for promoting the interests of agriculture, supervise and regulate the trade in commercial fertilizers, investigate and suppress diseases of animals and the ravages of pests and diseases of fruit, promote the improvement of horticulture, investigate and publish information as to drainage and irrigation, collect statistics on farm fences, supervise the propagation of fish, enforce the laws in relation to fertilizers, seeds, and food products, hold farmers' institutes, induce immigration, extend diversified farming, and publish bulletins containing the work of the experiment station. (Laws of 1899, chap. 377.)

STATE AGRICULTURAL SOCIETY.

The North Carolina Agricultural Society is incorporated. It is empowered to hold real estate and personal property not exceeding \$50,000 in value, for the purposes specified in the statute. The officers of the society are to be elected annually, and shall be a president, 4 vice-presidents, treasurer, corresponding secretary, recording secretary, and such others as may be necessary. The association is authorized to make rules and regulations, and is required to hold annual fairs, and for that purpose to apply the moneys acquired by it. The State appropriates not to exceed \$1,500 to be disbursed in the payment of premiums on certificate from the treasurer of the society saying that a like sum has been raised by the society for such purpose and that all games of chance have been excluded from the exhibition grounds. (2 Code, 1883, secs. 2214-2219, as amended by Laws of 1887, chap. 409, sec. 13.)

LOCAL AGRICULTURAL SOCIETIES.

Not less than 10 persons resident in any county may sign articles of association to encourage agriculture, become incorporated, and hold real and personal property not exceeding \$10,000 in value for such purpose. Such societies shall continue as long as they have 10 members each, at the pleasure of the General Assembly. The organization of any such society shall be certified to the clerk of the board of county commissioners and by him to the State Treasurer. If by such certificate it appears also that \$50 has been paid into such society by the members thereof, the State Treasurer is authorized to pay to the treasurer of such society \$50 for the benefit of such society. Only one society in each county shall be entitled to the benefit of this appropriation, as determined by the board of county commissioners. All moneys so subscribed and the State aid above mentioned shall be used in the payment of premiums. A report shall be made annually to the State Treasurer, and the proceedings of such society shall be annually published. Power is given to the society to police exhibition grounds. (2 Code of 1883, secs. 2220-2226-2793.)

FARMERS' INSTITUTES.

Farmers' institutes are required to be held in each county of the State at least once in 2 years under the direction of the State Board of Agriculture. (Laws of 1887, chap. 409; laws of 1899, chap. 377.)

DISEASES OF ANIMALS.

The law provides that swine affected by cholera shall be isolated from healthy swine; and if they die of disease they must be buried so as to be out of reach of other animals. (Laws of 1899, chap. 173.)

The Board of Agriculture is empowered to investigate diseases of cattle and domestic animals and suggest remedies; it has power to quarantine, regulate transportation of stock from one State to another, and act in concert with the United States in quarantine against Texas fever. (Ibid., chap. 377.)

HORTICULTURE.

A commission for the extermination of noxious insects, fungous diseases, and weeds consists of the State Commissioner of Agriculture, the director of the State experiment station, and the president of the State Horticultural Society. It is the duty of this commission to publish lists of dangerous crop pests and remedies, and enforce regulations to prevent their introduction and spread.

An inspector is employed by the commission. It is unlawful for a person to keep on his premises any injurious crop pest. Failure to carry out orders of the commission may result in the premises being cleaned up by their order at the expense of the owner. (Ibid., chap. 264.)

FERTILIZERS.

The law provides that when analysis shows the presence of deleterious substances in a commercial fertilizer publication shall be made in the bulletin of the experiment station, and all such commercial fertilizer shall be seized and condemned as provided by law. (Laws of 1897, chap. 286, amending section 2194 of the code.)

The law authorizes the State Board of Agriculture to adopt such regulations as will enable them to enforce the law, and provides that each package of fertilizer shall be tagged with a label furnished by the board, and that 25 cents per ton shall be paid for the analysis of fertilizers sold in the State. The labels shall show the percentage of each ingredient, and if fertilizer is found to contain less than the implied guaranty it may be confiscated. (Laws of 1891, chap. 9.)

Pure cotton-seed meal is exempt from the use of labels for shipping purposes required for other fertilizers. (Laws of 1893, chap. 462; laws of 1899, chap. 377.)

NORTH DAKOTA.

COMMISSIONER OF AGRICULTURE AND LABOR.

The Commissioner of Agriculture and Labor is chosen by the qualified electors of the State for a term of 2 years. He must be at least 25 years of age and a citizen of the United States, and have the qualifications of an elector in the State. He shall hold his office at the seat of government. (Const., art. 3, sec. 82.) He is required to collect and present to the legislative assembly biennial reports containing statistical details with reference to all departments of labor in the State, and is created State Statistician and required to collect statistics concerning the assessed valuation of all agricultural products, the yield of crops and acreage thereof, and the number and kinds of live stock. He is given charge over exhibits made by the State at any fair or exhibition held in the United States. (Laws of 1897, chap. 44.)

STATE BOARD OF AGRICULTURE.

A State Board of Agriculture is created, consisting of 1 person from each judicial district in the State, to be appointed by the Governor, with the advice and consent of the Senate, and to hold office for 2 years. This board is required to supervise the holding of annual fairs on the fair grounds at Grand Forks owned by the State. It is authorized to make rules and regulations for the same, invite the cooperation of other States and Territories, and make awards of premiums at the same. The board

shall at its annual meeting elect a president and vice-president from its own number to hold office for 1 year. At the same time it is required to select a secretary and a treasurer not members of the board, and may fix their duties and compensation. Power is given for the policing of exhibitions held by the board, and provision is made for annual reports. The State will not be liable for the debts incurred by the board. (Act of 1895, secs. 156-168.)

DEPARTMENT OF AGRICULTURE.

A Department of Agriculture, for the promotion of agriculture, live stock, and horticulture, is created, to be managed by a board of 3 trustees, appointed by the Governor with the advice and consent of the Senate, for a term of 2 years.

The Morton County Fair Association is authorized to allow the use of its fair grounds at Mandan, Morton County, for the purpose of holding a State fair, which shall be under the control of the State board of trustees and the directors of the Morton County Fair Association. Annual meetings of the State board of trustees, together with the board of directors of the State Fair Association, are provided for, at which officers shall be elected for a term of 1 year. This association shall not have power to bind the State for any indebtedness. The State appropriates annually \$1,250 for the purpose of premiums to be awarded at the State fair. (Laws of 1897, chap. 134.)

LOCAL AGRICULTURAL SOCIETIES.

County associations, incorporated for the purpose of holding agricultural fairs, may apply to the board of county commissioners for financial aid. The board of county commissioners is authorized to levy a tax not exceeding one-fifth of a mill on the taxable property of the county to raise money for such aid, but only one county-fair association in each county shall be entitled to such aid. Such a fair association, to be entitled to such aid, must have had a corporate existence and held annual fairs for 3 years in succession previous to the application for aid, and must own buildings and improvements to the value of \$1,000. (Laws of 1897, chap. 75.)

FARMERS' INSTITUTES.

Provision is made for holding farmers' institutes, and the Assistant Dairy and Food Commissioner is made director of all farmers' institutes in the State and charged with all matters relating thereto. (Laws of 1899, chap. 72, sec. 17.)

DISEASES OF ANIMALS.

The law provides for the division of the State into 9 veterinary districts, and for the appointment by the Governor of a competent veterinarian in each district. (Laws of 1897, chap. 146.)

The law prescribes the duties of the district veterinarian, covering the investigation, inspection, and regulation of contagious and epidemic diseases among cattle and domestic animals within his district. It is the duty of the district veterinarian to examine all pens, inclosures, and cars in which domestic animals may be confined, and oblige the owners to keep them in proper sanitary condition.

It is unlawful for a person to knowingly convey sheep affected with a contagious disease into a herd of sheep belonging to another person.

The law provides for the treatment of sheep having malignant contagious disease.

The law provides that any person bringing sheep into the State must notify the inspector before such sheep are allowed to mingle with any herd, and they must not so mingle until they have been quarantined 40 days, unless they have been ranged for not less than 40 days near the county line, and are known to be free from disease. (Laws of 1891, chap. 116.)

The law provides for the importing of animals for breeding purposes, their inspection and quarantine, etc. (Laws of 1897, chap. 130.)

If a flock is reported by the inspector to be diseased it is the duty of the owner to herd it at least one mile from any range for other sheep. (Laws of 1899, chap. 36.)

OHIO.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is incorporated, and consists of 10 members whose term of office is 5 years each, 2 members retiring annually. The presidents of the county agricultural societies, or duly authorized delegates therefrom, meet with

the board at its annual meeting. The board is required to hold an annual State exhibition of agriculture and productive industry, and make an annual report to the General Assembly. It is empowered to hold real estate necessary for that purpose, and a State agricultural fund is placed at the disposal of the board. (2 Bates An. Stat., secs. 3691-25—3696.)

LOCAL AGRICULTURAL SOCIETIES.

Thirty or more persons, residents of any county or district embracing 2 or more counties, may organize a society for the improvement of agriculture, and adopt rules and regulations conforming to those prescribed by the State board. If such society raises and pays to its treasurer not less than \$50 in each year, and this fact is certified under oath to the county auditor by the president of the society, the county auditors of such county or district shall draw an order on the county treasury or treasuries for a sum equal to the amount raised, not exceeding 2 cents to each inhabitant of the county by the last United States census, and not in any case exceeding \$300. In counties where there are large cities this amount of money may be apportioned among several different societies, if they be organized as above and comply with the law. Such societies must hold annual exhibitions, offer premiums thereat and publish the awards, and are made corporations. Where a county society purchases or leases land for a term of not less than 20 years for the purpose of holding its fairs thereon, the board of county commissioners is authorized to aid such society in the purchase or lease of such land by an appropriation from the county treasury. County commissioners may insure buildings on fair grounds. Very full provisions are made concerning such societies when located near the large cities. (Ibid., secs. 3697-3705, 3710.)

The incorporation of town agricultural societies is authorized. (Ibid., sec. 3709.)

FARMERS' INSTITUTES.

Provision is made for the incorporation of 20 or more persons resident in any county into a county farmers' institute society, under rules to be prescribed by the State Board of Agriculture. When a society organized under the provisions of this act shall have held an annual institute in accordance with the regulations of the State board, the secretary of the State board shall issue certificates, one to the president of the institute society and one to the president of the State Board of Agriculture, and on presentation of such certificate by the president of the institute to the county auditor the county treasurer is required to pay to such farmers' institutes a certain sum of money. Such sum shall be on a basis of 3 mills to each inhabitant of the county, as shown by the last United States census, and where there is more than one society in such county, then the sum is to be apportioned between them, but in any case such sum is not to exceed \$250. At the same time there shall be submitted to the county auditor a statement of the financial condition of such society and its expenses. The State board is required to furnish lecturers and speakers to such institutes, and at the close of the season to publish the proceedings thereof, or such portions as shall be deemed proper, together with a detailed financial statement. (Ibid., secs. 3713-1—6.)

FARM LABORERS' ASSOCIATIONS.

The incorporation of farm laborers' associations is authorized for the purpose of promoting the interests of agriculture and for the relief of distressed farm laborers and their widows and orphans, and they are authorized to hold real estate for the purpose of their incorporation not exceeding in value \$50,000. Restrictions in regard to loans taken by such associations are prescribed. Reports must be made to the Attorney-General. Consolidations of two or more associations are authorized, and such associations may maintain libraries. (Ibid., secs. 3843-3847.)

DISEASES OF ANIMALS.

It is unlawful for any person to transport any hogs infected with cholera within the State, but common carriers are exempt from this act. (O. S., 4211-4217.)

The law provides that the Governor shall appoint three persons to constitute a Board of Live Stock Commissioners, whose duty it shall be to prevent the spread of dangerous diseases among animals, and provides for the extirpation of such diseases; and if any contagious diseases are found the board is to maintain quarantine as long as necessary.

The expenses of quarantine shall be paid by the owners.

The law provides that the commissioners can destroy diseased animals after first having them appraised, and the compensation made by the State shall be computed on the basis of actual value at the time of slaughter. The law does not provide for the payment for animals slaughtered that were brought into the State diseased.

The law provides that during the months of March, April, May, June, July, August, September, and October no cattle shall be driven into the State from Florida, South Carolina, North Carolina, Georgia, Alabama, Mississippi, Louisiana, Tennessee, Arkansas, Texas, and Indian Territory, and any transportation company conveying cattle into or through the State during this time will not be allowed to unload the same except for feeding purposes. The above is to prevent the infecting of Northern cattle with the malady known as Texas fever.

Animals suffering from glanders or farcy shall be isolated and not sold.

The law prohibits sheep that have foot rot or scab from running upon any highway or uninclosed grounds, or the sale of such sheep without notifying the purchaser.

Special instructions are imposed on transportation companies when diseases are discovered among animals in transit. (Ibid., 4210-4212.)

HORTICULTURE.

It is made the duty of the board of control of the Agricultural Experiment Station to seek out and cause to be exterminated the San José scale and other dangerous insects, etc., and black knot and peach yellows are declared dangerous plant diseases.

The nurseries must be examined once a year, not later than August 15, and if the nurseries are found free from disease, the board, on receipt of \$10, shall give each owner a certificate, provided one day's time is consumed in the inspection, and \$5 for each additional day of inspection.

Duplicate certificates must be filed with the board.

Copy of original certificates must be attached to all shipments of nursery stock.

The law provides that it is the duty of the board to examine orchards, gardens, etc. If they find such places infected with disease they shall notify the owners to use all possible measures to prevent the conveyance and spread of such disease. If the persons so notified neglect or refuse to treat and disinfect such premises within the time prescribed, the board shall cause the property to be treated, one-half of the cost falling on the owner.

All packages of nursery stock shipped into the State shall be plainly labeled with the names of the consignor and consignee and certificate showing proper inspection.

The law provides that the carrier of nursery stock must report within twenty-four hours to the board if stock is without certificate, and it is unlawful to deliver any such property until it has been inspected and certificate issued.

This act does not apply to florists, greenhouse plants, etc.

An appropriation of \$15,000 is made to carry out the provisions of the above. (Laws of 1900, p. 221.)

FERTILIZERS.

The law provides that the commercial fertilizers sold in the State must bear a printed certificate, stating the amount, trade-mark or name, name of manufacturer and place, and the constituent parts.

The manufacturer or importer of fertilizers must file with the secretary of the Ohio State Board of Agriculture a certified copy of the certificate referred to, and deposit a sample, accompanied by an affidavit that it is a fair average sample, before he offers it for sale in the State. There is an annual license fee of \$25 charged the manufacturer or agent. The analysis of each brand of fertilizer shall be made yearly by the Board of Agriculture, and results published.

Any person not complying with the law is subject to a fine and for damages sustained by any purchaser. (O. S., 4446a-4446i.)

OKLAHOMA.

AGRICULTURAL FAIR CORPORATIONS.

Agricultural fair corporations are allowed to hold not to exceed 160 acres of land for the purpose of promoting agriculture and holding fairs. Such corporations are prohibited from creating any debts in excess of the amount of money on hand in their treasuries, except that they may create a debt of not more than \$3,000 for the purchase of real property for exhibition purposes and secure the same by mortgage. Agricultural fair corporations are not allowed to have any capital stock, nor to be conducted for profit while organized as such; but three or more persons may organize an agricultural fair corporation under the general corporation laws of the Territory. (Laws of 1893, secs. 1140-1142.)

DISEASES OF ANIMALS.

The agricultural and mechanical board of regents are constituted the live-stock sanitary commission, whose duty it is to protect the live stock of the Territory from contagious and infectious diseases, by establishing and maintaining quarantine lines, and by making regulations for enforcing the same, and to prevent the importation and exportation of diseased live stock. The said commission shall cooperate with the United States Secretary of Agriculture in establishing and maintaining quarantine lines.

Districts are formed and inspectors assigned whose duty it is to enforce Federal and Territorial regulations and make inspections when notified. Inspectors can seize stock and enforce liens for charges.

Penalties are prescribed for handling stock in violation of the quarantine regulations.

Railway companies are obliged to disinfect cars and pens.

Inspectors are to kill certain diseased animals and pay for same. (Laws of 1897, chap. 31.)

It is unlawful to sell or dispose of the carcass of any swine or other animal infected with infectious diseases at the time of death to any person for the purpose of manufacturing into lard, etc., or any other purpose except that of burial or burning.

Live swine that are infected with contagious diseases shall not be disposed of or driven on a public highway. (Laws of 1899, chap. 2.)

OREGON.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of eight resident citizens of the State to be appointed by the Governor and four citizens elected by the State Agricultural Society, and their term of office is four years. The president is to be elected by the board from their number at their annual meetings, and the secretary and treasurer for the same term, not from their number. The membership of the board is to be divided into classes, so that three members will retire each year. The State board is charged with the management of the State Agricultural Society and its property, is to provide for and take charge of the annual State fair, police the same, collect and disseminate useful agricultural information, report to the Governor annually, hold real estate, and pay premiums to exhibitors at the State fair, for which an appropriation is made by the State. (2 Hill's An. Laws, secs. 3151-3163.)

DISTRICT AGRICULTURAL SOCIETIES.

Three citizens, one from each county specified, together with two elected by the county agricultural societies of such counties, are created a board of commissioners to be known as the First Southern Oregon District Agricultural Society. Four citizens similarly appointed, together with three persons elected from the county agricultural societies of specified counties, are likewise created a board of commissioners under the title of the Second Southern Oregon District Agricultural Society. The term of office is two years in each case. Their organization is provided for by the statute, and they are empowered to hold fairs in each district, at Central Point and Roseburg, respectively. Provision is made for the management of the fairs by such boards of commissioners and annual reports by them to the Governor. They are required to receive and distribute a State appropriation made for premiums at such fairs. (Acts of 1893, pp. 113-116, as amended by Acts of 1901, p. 275.)

The First and Second Eastern Oregon agricultural districts are defined and boards of commissioners to be known as the First and Second Eastern Oregon District Agricultural Societies are created. The commissioners are to be appointed by the county courts biennially, to hold office for two years. The said boards of commissioners are charged with the duty of holding annually Eastern Oregon fairs in each district, and are given control and custody of the grounds. They are to make rules and regulations and determine the amount of premiums, etc. The statute fixes the site of fairs in the first district at La Grande and Baker City, such fairs to be held alternately, and in the second district at Dalles City. The boards are required to report to the Governor, are given power to police the fair grounds and to receive State moneys (\$1,500 annually) appropriated for the payment of premiums and distribute the same accordingly. County and district agricultural societies may incorporate under the general laws of Oregon. In order to be entitled to State aid they are required to report annually to the State Board of Agriculture and hold annual fairs. Such societies may hold real estate for the purpose of incorporation not exceeding 160 acres of land. (2 Hill's An. Laws, secs. 3159, 3161; Laws of 1901, p. 113.)

DISEASES OF ANIMALS.

It is the duty of the State Veterinarian to examine diseased animals upon advice from the inspectors, and he shall take such means to eradicate the disease as he deems necessary. The State Veterinarian may list and describe the animals affected and also the premises quarantined.

The law provides that in case animals should be destroyed for the benefit of the public they may be appraised.

Animals may be subjected to the tuberculin test when they are suspected of being infected with tuberculosis. (Laws of 1895, p. 60.)

It is lawful for an express company to transport sheep, not exceeding four, without an inspection of the sheep. (Laws of 1898, p. 30.)

The law provides that the stock inspector may dip sheep affected with disease, except a band of ewes, and from the 1st of March to the 1st of May. There is also a provision as to the time of dipping ewes. (Laws of 1891, p. 45.)

It is unlawful to bring a band of sheep into the State except within 3 months of receiving a certificate from a sheep inspector, showing that they are healthy and free from contagious disease. The inspector is required, upon application, to inspect any band of sheep within his county, unless it has been inspected by him three months prior, and if found healthy and free from contagious disease, to issue a certificate of health.

Other provisions governing inspection, quarantine, etc., are included in these laws. (Laws of 1899, pp. 170, 171.)

STATE BOARD OF HORTICULTURE.

A State Board of Horticulture is created consisting of 6 members to be appointed by the Governor, Secretary of State, and State Treasurer acting as a board for that purpose. One member shall represent the State at large and shall be president of the board. The State is divided into 5 horticultural districts, and 1 member is appointed from each district. They are required to be residents of the districts for which they are selected, and to be engaged in practical horticulture during their incumbency as such commissioners. The term of office is 4 years. The president of the board is made executive officer thereof and required to attend to the inspection of orchards, nurseries, etc., and see that the laws of the State in respect to horticultural diseases and pests are complied with. He is also required to meet with and address fruit growers' associations upon request, and also to make an annual report to the appointing board of the work of the horticultural commission. The inspection and regulation of horticultural stock, places, and transportation vehicles is provided for, also the prevention and suppression of horticultural diseases and pests, and an appropriation is made for the same. (2 Hills An. Laws, p. 1875; act of Feb. 25, 1889, as amended by act of Feb. 23, 1895, Laws of 1895, p. 33; act of Feb. 17, 1899, Laws of 1899, p. 55.)

The disposition of cuttings and prunings and the packing and transportation of the same is regulated; the importation of diseased fruit and nursery stock is prohibited; and the sale of paris green, arsenic, and London purple used as insecticides is regulated. (Act of Feb 17, 1899, p. 97.)

FERTILIZERS.

The law provides that every package of fertilizer shall have attached to it in a conspicuous place a certified analysis made by the State chemist from a sample. (Laws of 1899, p. 50.)

PENNSYLVANIA.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture consists of the Governor of the Commonwealth, the Secretary of Internal Affairs, Secretary of Public Instruction, Auditor-General, president of the Pennsylvania State College, 1 person to be appointed by each agricultural society in the State entitled to State bounty, 3 other persons to be appointed by the Governor with the advice and consent of the Senate, and 1 member of the Pennsylvania State Poultry Association. (Pep. and Lew. Dig., p. 4356, sec. 1, as amended by acts of 1899, No. 83.)

The term of office of members of the board is 3 years. Members of the board do not receive compensation. Meetings must be held annually, and as much oftener as necessary, at the seat of government. The board is required to investigate subjects

relating to agriculture, and may take and hold bequests and donations for the promotion of agriculture and husbandry. It may prescribe forms for the returns of local societies, and must report annually to the general assembly. (*Ibid.*, p. 4357.)

DEPARTMENT OF AGRICULTURE.

A Department of Agriculture is established to be administered by a Secretary of Agriculture, who shall be appointed by the Governor, with the advice and consent of the Senate, for a term of 4 years, and receive an annual salary of \$3,500. He shall be ex officio secretary of the State Board of Agriculture, and all powers devolving upon that officer heretofore are conferred upon him. His duties are to promote in every way agriculture, horticulture, forestry, and kindred industries; collect and publish information and statistics in regard to crops, their diseases, and remedies therefor; collect and publish information in regard to the raising of stock and poultry, preparing wool for market, taxation of farm lands, and the diversification of agriculture. He is required to make an annual report to the Governor and publish from time to time bulletins of information in relation to the foregoing topics and also respecting timber and wood lands, the preservation of timber, etc. The department shall be further officered by a deputy secretary, to be appointed by the Governor for 4 years at a salary of \$3,000 a year, who is made director of farmers' institutes, an Economic Zoologist appointed by the Governor for a similar term, a Commissioner of Forestry, a Dairy and Food Commissioner, and a State Veterinarian, the latter to receive a salary of \$2,500 a year. Provision is also made for the appointment of a chief clerk and other clerks, and their duties and compensation are fixed. The secretary is authorized to employ experts to assist in his investigations, and an appropriation is made for the same. The secretary's office is required to be at the seat of government. (*Ibid.*, pp. 266-268.)

LOCAL AGRICULTURAL SOCIETIES.

Provision is made that upon the organization of any agricultural or horticultural society in any county, if it shall raise annually any sum of money from among its members and the same shall be paid into the treasury and be devoted to the purpose of promoting agricultural knowledge and improvement, and that fact be attested by an affidavit made by the president and treasurer of the society and filed with the commissioners of the county, such society shall receive a like sum from the county treasury. This appropriation is limited to one society in each county, and to an amount not exceeding \$100. Power is given such societies to police their grounds. (*Ibid.*, pp. 113-114.)

FARMERS' INSTITUTES.

The Superintendent of Farmers' Institutes is directed to hold them in such a way as to secure the greatest economy and efficiency, and to cooperate with the State and local boards of agriculture for that purpose. (*Ibid.*, p. 268, sec. 9.)

DISEASES OF ANIMALS.

It is the duty of the State Live Stock Sanitary Board to protect the health of domestic animals, to provide the most efficient means for the prevention and suppression of dangerous, contagious, or infectious diseases, enforce quarantine and other rules relating to the movements and care of animals and their products.

In the case of any slowly contagious diseases only suspected or diseased animals shall be quarantined.

The law provides for the payment by the State for the destruction of condemned animals: \$25 each for graded or common stock, \$50 for registered stock, \$40 for horse or mule common graded stock, 50 per cent of appraised value of standard breed registered or imported horses.

The law prohibits the importation of dairy cows and neat cattle for breeding purposes, unless accompanied by certificate from a reliable inspector.

The board may prohibit the importation of any cattle when deemed necessary for the protection of cattle in the State. (*Laws of 1897, No. 82.*)

HORTICULTURE.

It is unlawful for a person to keep an orchard or nursery tree infested with insects, etc., or to sell fruit from such trees, except plums, cherries, and pears. Such trees are subject to destruction as a public nuisance, and no damages shall be awarded for the destruction of such trees. It is the duty of the owner to destroy such trees; but it is sufficient to exterminate San Jose scale with effective insecticides.

Local commissioners are provided for any township, borough, or city, who have charge of inspection, etc.

If the owner neglects to treat or destroy infested trees the commissioner may employ help to remove or destroy trees at the expense of the city, township, or borough, but the expense may be recovered from the owner. (Laws of 1899, No. 77.)

RHODE ISLAND.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of the Governor, Lieutenant-Governor, and Secretary of State ex officio, 1 member appointed by and from the board of managers of the Rhode Island College of Agriculture and Mechanical Arts, 1 member appointed by each agricultural society receiving bounty from the State, 3 members to be appointed by the Governor, 1 from each county not represented by an agricultural society, 1 of whom is a resident of Providence County, and 1 member appointed by and from the Rhode Island State Grange. The term of office of appointed members is 2 years. Meetings are required to be held in Providence semiannually, and oftener if necessary. The duties of the board are to look after the promotion of the agricultural interests of the State; to supervise the analysis of fertilizers and the execution of the laws relating thereto; to distribute plants, seeds, and shrubs; and to receive and hold in trust donations and bequests for the promotion of agriculture. The members of the board receive no compensation, but an allowance for expenses in the discharge of their duties. A secretary may be appointed whose duties and compensation shall be fixed by the board. Agricultural and kindred societies are required to report to the State board, and on failure to do so their allowance may be cut off. The board is required to report annually to the general assembly. It is empowered to appoint cattle commissioners, employ veterinary surgeons and appraisers, to enforce the laws against diseases of animals, and to cooperate with the United States authorities for that purpose. (Laws of 1896, chap. 99.)

COMMERCIAL FEEDING STUFFS.

The term "concentrated commercial feeding stuffs" is defined. All lots or parcels thereof are required to be labeled with a statement certifying the number of net pounds contained therein, the name, brand, or trade-mark, the name and address of the manufacturer or importer, and a chemical analysis. Manufacturers and dealers are required to file, upon request, a certified copy of such statement with the Rhode Island College of Agriculture and Mechanic Arts. Provision is made for the analysis of such feeding stuffs, penalties for the violation of the act are prescribed, and appropriation is made for its enforcement. (Laws of 1899, chap. 631.)

DISEASES OF ANIMALS.

The law prohibits the importation of neat cattle or other animals infected with contagious disease, and provides that town councils may pass ordinances to prevent the spread of diseases among animals.

The State Board of Agriculture may prohibit the introduction of cattle or other domestic animals into the State.

It is unlawful for any person to sell any animal or part thereof infected with disease.

The board is empowered to make regulations for the prevention, treatment, curing, and extirpation of diseases among animals. (Laws of 1896, chap. 98.)

The law provides for the destruction of horses or other animals having glanders, farcy, or other communicable disease, and fixes the price to be paid the owner for destruction at \$50 for a native animal and not more than \$75 for any grade animal or \$100 for any single registered animal.

Animals may be quarantined if they are supposed to be affected with contagious diseases, and one-third of the cost is borne by the State.

If tuberculous animals are killed by order of the board, the State shall pay one-half of the appraised value, but if, upon post-mortem examination, they shall not prove to have had tuberculosis, the State shall pay the full appraised value. The State shall not pay for any animal not owned in the State for three months prior to slaughter.

No diseased animals shall be sold.

All cattle brought into the State must be accompanied by a certificate of health, giving a description of each animal, the place of examination, preparation of tuberculin used, quantity injected, etc.

The Governor is authorized to accept the rules and regulations of the United States Bureau of Animal Industry, and shall cooperate with the inspectors of that department in suppressing dangerous contagious and infectious diseases. (Rev. Stats., 1896, chap. 99.)

FERTILIZERS.

The law provides that commercial fertilizer sold or offered for sale in the State shall be accompanied by a label stating the number of pounds, the name, brand, or trademark under which it is sold, name and address of the manufacturer or importer, and a chemical analysis giving its constituent parts.

When fertilizers are sold in bulk for the use of farmers, a statement must be sent to the board of managers of the agricultural college, giving the name of the goods, and accompanied by an affidavit giving the percentage of the ingredients, together with a list of agents and a sample of said fertilizers.

No person shall sell any pulverized leather, raw, steamed, roasted, or in any form, as a fertilizer without an explicit certificate of the fact affixed to every package.

The board of managers may have samples of fertilizers sold in the State collected and analyzed and published, together with a statement of their value per ton, and shall prosecute every violation of the law.

The manufacturer, importer, agent, or seller of any brand of fertilizer shall pay annually an analysis fee of \$6 for each fertilizing ingredient claimed to exist. (*Ibid.*, chap. 154; laws of 1898, chap. 520.)

SOUTH CAROLINA.

AGRICULTURE.

The Department of Agriculture and the Commissioner of Agriculture are abolished, and their powers, with certain exceptions, are devolved upon the board of trustees of the Clemson Agricultural College. Said board of trustees shall meet at the call of the Governor and shall receive no compensation, but an allowance of \$3 a day and 3 cents a mile is made while engaged in the duties imposed by this article. They shall have power to regulate the returns of county agricultural societies chartered by the State; collect agricultural statistics; investigate subjects relating to the agricultural improvement of the State; enforce the regulations against diseased animals; supervise the execution of the laws in respect to fertilizers; keep books of registry for the entry of tracts of land desired to be sold; keep books of entry for the names of those desiring employment as laborers; cooperate with the United States authorities, receive from them seeds, plants, documents, and information and distribute the same; hold agricultural conventions and farmers' institutes; and report to the General Assembly annually. (*Rev. Stat.*, 1893, sec. 1129 et seq.)

DISEASES OF ANIMALS.

It is unlawful for any person to transport within the borders of the State any animals infected with glanders, and any persons violating the law are liable for all damages affecting the introduction of said diseases, unless the said person can produce a clean bill of health from some veterinary surgeon that such stock was not infected at the time when transported within the borders of the State. (*Laws of 1890*, No. 464.)

It is the duty of the State Board of Health to cooperate with the officers of other States and of the Federal Government in establishing interstate quarantine laws, etc.

The law prescribes that the State Board of Health shall make such rules and regulations as are necessary within quarantine lines for the preservation of the live-stock industry. (*Laws of 1899*, No. 77.)

FERTILIZERS.

The law of 1890 abolishing the Department of Agriculture and the office of Commissioner of Agriculture imposes upon the board of trustees of the Clemson Agricultural College supervision of all laws respecting the sale of commercial fertilizers, and provides that they shall appoint a special inspector or inspectors of fertilizers, etc. (*Laws of 1890*, No. 461.)

The law provides for the punishment of fraud or misrepresentation in the manufacture, analysis, or sale of fertilizers and commercial manures.

All fertilizers must be tagged. (*Ibid.*, No. 463.)

The law divides fertilizers into three grades—high grade, low grade, and standard; provides penalties for misrepresentation, and also provides that a person selling fertilizers without proper label or stamps renders the offender liable to a fine of \$10 for each separate bag or package. (*Laws of 1898*, No. 477.)

The law provides for the proper inspection, etc., of fertilizers, the issuance of tags, etc., and for an inspection tax of 25 cents per ton, etc. (*Laws of 1899*, No. 65.)

If fertilizers fall short upon analysis to the extent of 10 per cent in any fertilizing ingredient, the vender of such fertilizer shall forfeit one-half of the price thereof. (Laws of 1900, No. 263.)

SOUTH DAKOTA.

DEPARTMENT OF AGRICULTURE.

A Department of Agriculture is created and divided into two districts, to be managed by boards called district boards of agriculture. Such boards consist of one person from each legislative district in the agricultural district. After the first boards, which were appointed by the Governor, the members of such boards shall be elected by delegates of the respective legislative districts chosen by the county agricultural societies. Their term of office is one year. All that part of the State of South Dakota south of the seventh standard parallel shall be styled and known as district No. 1, and all that part of the State north of such parallel as district No. 2. Each district board shall appoint a secretary not from its number, and fix his duties and compensation, not exceeding \$200 a year. His term of office shall be the same as that of the board appointing him. Each board shall also elect a treasurer and fix his compensation at not more than \$100 a year; he shall not be one of their number, and shall serve during the term of office of the members of the board appointing him. The district boards have power to determine the places of offices. Such boards have power to make contracts, hold meetings for the transaction of business, purchase and hold property and dispose of the same, sue and be sued, hold district fairs, farmers' institutes, and stock shows; but the State shall not be liable for their debts. The boards shall have control of the Department of Agriculture and all district fairs and farmers' institutes, and give premiums, and may make rules and regulations not inconsistent with the laws of the State nor of the United States. They are required to report annually to the Governor. They are given authority to police fair grounds. They shall serve without compensation, but mileage at the rate of 10 cents per mile and necessary expenses shall be allowed to them while attending upon meetings of the board. (Grantham's An. Stat. of 1889, secs. 277-290.)

AGRICULTURAL FAIR CORPORATIONS.

Agricultural fair corporations may hold property not exceeding 160 acres of land, with improvements, for the purpose of promoting agriculture, but may not incur liabilities beyond the amount in the treasury, except for the purchase of real property, for which purpose they may create a debt of \$3,000 to be secured by mortgage. Such corporations are not conducted for profit and must annually raise sufficient money for defraying their expenses; but 3 or more persons may organize agricultural fair corporations under the general corporation laws of the State. (Ibid., secs. 4262-4264.)

FARMERS' INSTITUTES.

The Regents of Education are authorized to encourage and provide for farmers' institutes and university extension work. (Ibid., sec. 547.)

DISEASES OF ANIMALS.

It is unlawful to bring any Texas or Cherokee cattle into the State between the first of November and the first of February.

The Governor shall name a veterinary surgeon whose duty it shall be to inspect domestic animals, and to whom all persons importing cattle, etc., shall report.

Diseased cattle slaughtered by the proper authorities are paid for by the State. It is unlawful to sell or give away any diseased animals, and in the case of those that have been known to be affected within a year, notice of the fact must be given to the purchaser.

It is unlawful to kill any diseased animal for butchers' purposes or sell any part of it.

The right to indemnity under this act is limited to animals destroyed by reason of the existence of epizootic disease.

No bovine animals shall be appraised at over \$50, except registered pedigree stock, which shall be valued at not exceeding \$150.

No equines shall be appraised at over \$100, except pedigree animals, which shall not exceed \$300.

The law provides that no indemnity shall exist under a number of conditions. (An. Stat. of 1899, secs. 3114-3209.)

Another law relates to swine and the control of the diseases thereof. (Laws of 1899, chap. 131.)

TENNESSEE.

BUREAU OF AGRICULTURE, STATISTICS, AND MINES.

A department of agriculture, called the Bureau of Agriculture, Statistics, and Mines for the State of Tennessee, is created under the control of a commissioner, to be appointed by the Governor with the advice and consent of the Senate, for 2 years. The office of the commissioner shall be at the seat of government; his compensation is \$3,000 a year and necessary traveling expenses, not exceeding \$800 a year. Provision is made for the appointment of a clerk, 3 assistant commissioners, 4 inspectors, a geologist, and a chemist. The commissioner is empowered to collect specimens of agricultural and mineral products of the State; to make rules and regulations for the inspection and analysis of fertilizers and publish the results; to investigate diseases and pests of fruit and crops, and publish information concerning the same; to employ a chemist to make analyses, and a geologist to make maps of the mineral region of the State; to encourage immigration; to keep a record of mineral lands in the State for sale, lease, or colonization; and to enter into bonds with heads of families to convey homesteads not exceeding 40 acres each out of State lands under certain restrictions made in the act. He is required to report quarterly to the Governor concerning the finances of his office. (Code of 1896, secs. 313-325.)

AGRICULTURAL FAIR CORPORATIONS.

Provision is made for the incorporation of companies to promote agriculture, horticulture, mineral arts, and the improving of live stock, and the form of the charter is prescribed. (Ibid., secs. 2203-2204.)

FARMERS' INSTITUTES.

Farmers' institutes, or conventions, are held in Tennessee through the voluntary efforts of the Commissioner of Agriculture, Statistics, and Mines.

DISEASES OF ANIMALS.

A State Veterinary Surgeon is appointed by the State Board of Health, which board has supervision of communicable diseases among domestic animals, the establishing of quarantine, and the making of regulations against the spread and for the suppression of diseases.

It is the duty of any person knowing or suspecting the presence of diseases to report the same to the county board of health.

Whenever the public safety demands the destruction of any animals, the board shall designate appraisers, who shall make a valuation of said animals.

It is unlawful to import animals affected with contagious disease or to sell or dispose of any such animals. (Laws of 1893, chap. 180.)

It is the duty of the State Board of Health to cooperate with the United States Government and with other States in establishing interstate quarantine lines to protect the live-stock industry of the State against Texas fever.

County boards have charge of quarantine stations until the State board can assume charge.

Animals diseased can not be sold, transferred, or driven in or through the State except under a certificate of the Board of Health. (Act of Feb. 15, 1897.)

FERTILIZERS.

All commercial fertilizers sold or offered for sale in the State shall bear a stamp on each package, giving the chemical analysis, name of manufacturer, etc., and shall bear a tag showing authority to sell such fertilizers, given by the Commissioner of Agriculture with whom a guaranteed analysis of each brand must be filed.

An inspection fee of 50 cents per ton or fraction thereof shall be paid.

Inspectors are appointed to collect samples of fertilizers sold in the State for analysis. Tags must be provided for each package brought into the State. (Laws of 1897, chap. 123.)

TEXAS.

COMMISSIONER OF AGRICULTURE, INSURANCE, STATISTICS, AND HISTORY.

A commissioner of Agriculture, Insurance, Statistics, and History is appointed by the Governor, with the advice and consent of the Senate, for a term of two years. He is required to be a citizen of the State and expert in matters of insurance. He is

empowered to appoint a chief clerk and such other assistants as may be necessary, to hold office at his pleasure. The commissioner must not be interested in any insurance company except as insured. He is required, among other things, to execute the laws in relation to agriculture, and is made a member of the board of directors of the Texas Agricultural College. He is required to cooperate with the United States authorities for the promotion of agriculture, and to collect and publish agricultural statistics; and provision is made for the publication and distribution of his reports throughout the State. (Rev. Stat., 1895, arts. 2908, 2924.)

AGRICULTURAL ASSOCIATIONS.

Private corporations may be formed for the incorporation of agriculture and horticulture by the maintenance of public fairs and exhibition of stock and farm products. (Gen. Laws of 1895, chap. 125.)

FARMERS' INSTITUTES.

Farmers' institutes are conducted voluntarily by the officers of the agricultural experiment station.

DISEASES OF ANIMALS.

It is unlawful to import into the State, or move from one county to another, any flock of sheep in which one or more are infected with scab.

Every owner of sheep knowing any of them to be infected with scab must dip those affected every 20 days.

Provision is made for the enforcement of this act at the expense of the owner. (Laws of 1897, chap. 125.)

Provision is made for isolating horses, mules, etc., if glanders or farcy is believed to exist.

If diseased animals are destroyed, the appraised value shall be paid to the owner, and the expenses of killing and disposing of condemned animals shall also be paid by the county. (Rev. Stat. of 1895; Laws of 1899, chap. 185.)

HORTICULTURE.

The officers of the Agricultural and Mechanical College are authorized to employ one or more expert entomologists, who shall devise means of destroying the Mexican boll weevil, boll worm, caterpillar, chinch, bug, etc. (Laws of 1899, chap. 10.)

FERTILIZERS.

Before any commercial fertilizer or commercial poison used for the purpose of destroying pests is sold or offered for sale, the manufacturer or agent shall deposit with the agricultural college a sample of the commodity offered for sale. The law exempts unmixed substances, cotton-seed meal, land plaster, salt, ashes, lime, green sand and marl, uncrushed bones, and animal excrement.

The law provides that the manufacturer shall pay a fee of \$15 for every brand of fertilizer or commercial poison sold or offered for sale, and provides that the analysis shall be made of each sample and its constituent parts published.

Labels will be furnished at \$1 per hundred.

Provision is made for collecting samples of goods in the market for analysis and comparison.

Agriculturists and farmers may have samples analyzed free of charge. (Laws of 1899, chap. 46.)

UTAH.

THE DESERET AGRICULTURAL AND MANUFACTURING SOCIETY.

The Deseret Agricultural and Manufacturing Society is incorporated for the purpose of promoting stock breeding, agriculture, horticulture, mining, manufacturing, and the domestic arts. It is governed by a board of 12 directors appointed by the Governor, with the advice and consent of the Senate, for a period of 4 years each. (Rev. Stat., sec. 2064.)

The board has power to make regulations for the society and fix the manner of and fees for admission to membership in the same. One of the members of the board shall be elected president and hold office as such for 2 years. The board has power also to appoint a secretary, treasurer, and other necessary officers and fix their duties and compensation. Directors are to receive no pay except actual and necessary

expenses in the performance of their duties, in which case such expenses are paid by the State. The society is required to hold an annual fair at Salt Lake City and award premiums. (Ibid., 1898, secs. 2120-2129, as amended by Acts of 1901, chap. 43.)

FARMERS' INSTITUTES.

The board of directors of the Agricultural College, with the advice of the faculty of the same, are authorized to hold farmers' institutes in each county at least once in the school year, and make rules and regulations governing the same. Those conducting institutes are required to promote the organization of local agricultural societies. An annual report of the institute work shall be made by the board for free distribution to the farmers of the State. (Ibid., secs. 2095, 2096.)

STATISTICS.

County assessors are required to collect agricultural statistics and report to the Commissioner of Statistics. (Ibid., chap. 55.)

DISEASES OF ANIMALS.

It is unlawful to bring or drive any domestic animal affected with contagious disease into the State.

Any person having in charge any animal affected with glanders or farcy shall at once kill it; failing to do so any peace officer may perform the act.

It is unlawful to allow diseased animals to run at large on uninclosed land, or on a highway, and the owner shall not sell any such animal without notifying the purchaser.

Penalties are attached for violating the law. (Rev. Stat. of 1898.)

It is unlawful for any person selling milk or dairy products to have in his possession, where milch cows are kept, cattle having tuberculosis or other contagious diseases.

The law prescribes that it is the duty of the Dairy and Food Commissioner to cause all cattle having contagious disease to be killed, if kept in violation of this act. (Laws of 1899, chap. 48.)

It is the duty of persons owning, controlling, or ranging sheep to have them dipped at least once a year in some preparation that will kill scab. (Rev. Stat., 1898, chap. 7.)

HORTICULTURE.

The State of Utah is divided into 3 horticultural districts, and a State Board of Horticulture is appointed consisting of 1 member from each horticultural district. The members of this board are to be selected with reference to their practical knowledge of horticulture, and no more than 2 shall belong to the same political party. Their term of office is 4 years. The Governor shall designate a member of the board to act as secretary. The board shall have power to fix the location of its office. The board is required to make rules regulating the prevention and suppression of diseases and pests among horticultural stock and products, and places infected with disease are made public nuisances. The members of the board receive \$200 per year each, with the exception of the secretary, who is to receive \$600 and an allowance of \$250 for traveling expenses. The board is required to hold 4 meetings a year at the seat of government and report biennially to the legislature. The State Treasurer is authorized to receive donations and bequests for the promotion of horticulture. (Ibid., secs. 1168-1182, as amended by Acts of 1899, chap. 47.)

Local horticultural inspectors to be appointed by the boards of county commissioners of the several counties are provided for and their duties and compensation are fixed. (Ibid., sec. 1176, as amended by acts of 1899, chap. 47.)

The State Board of Horticulture is authorized to import the birds known as the German Kohl Meisen, and an appropriation is made for that purpose. Such birds are to be used in extermination of insect pests, the results of their operations reported by the State board and published in bulletins for free distribution. (Acts of 1901, chap. 36.)

An appropriation of \$2,000 is made for the extirpation of the San Jose scale. (Ibid., chap. 76.)

It is the duty of nurserymen or owners of orchards, etc., to spray infected trees with disinfectants, but not while the trees are in bloom.

It is the duty of any nurserymen or persons receiving trees from points outside the State to report such facts to the county inspector. (Rev. Stat. of 1898; laws of 1899, chap. 47.)

BEES.

The board of county commissioners may appoint inspectors of bees, who shall be paid out of county funds.

All hives of bees shall be inspected at least once a year, and the inspector has authority to take charge or control of diseased bees and appurtenances for treatment, or destroy such bees, produce, or hives, and their contents, as may be infected. (Laws of 1892, p. 52.)

VERMONT.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of the Governor, the president of the University of Vermont and State Agricultural College, and 3 other persons, to be appointed by the Governor and confirmed by the Senate, who shall hold office for 2 years; and the board shall appoint from its number a secretary. The duties of the board are the promotion of the interests of husbandry and agricultural education throughout the State. The board is required to collect statistical information concerning agriculture, farms, and farm property, especially with relation to abandoned farms, and also to publish information regarding the advantages offered by the State to capitalists, tourists, and farmers. (Vt. Stat., 1896, secs. 246-248, 2450, as amended by Acts of 1898, No. 8.)

FARMERS' INSTITUTES.

The board is required to hold one meeting in each county annually, may employ lecturers and other assistants in conducting these meetings, and is required among other things at such meetings to discuss forestry, tree planting, roads and road making. (Laws of 1896, secs. 246-248.)

COMMERCIAL FEEDING STUFFS.

The term "concentrated commercial feeding stuffs" is defined. Packages or lots offered for sale in the State shall have affixed thereto in a conspicuous place a printed statement certifying the number of net pounds in the package or lot, the name, brand, or trade-mark of the same, the name and address of the manufacturer, place of manufacture, and a chemical analysis. Manufacturers and others before offering commercial feeding stuffs for sale in the State shall file a certified copy of such statement with the director of the Vermont Agricultural Experiment Station, and upon request shall deposit with him not less than 1 pound of such feeding stuff with an affidavit that the same is a fair sample thereof. Manufacturers and dealers are required to pay to the director of the experiment station a tax of 10 cents for every ton offered for sale in the State of Vermont, and shall affix to each car or package of such feeding stuff a tag to be furnished by the director stating among other things that such tax has been paid. The director of the experiment station is charged with the enforcement of the act, is empowered to cause analyses to be made of such feeding stuffs, and is required to report all violations of the act to the State Treasurer, who is authorized to prosecute the same. Penalties for violation of the act are prescribed. (Laws of 1898, No. 83.)

DISEASES OF ANIMALS.

It is unlawful to allow sheep infected with "hoof ail" or foot rot, or scab, to run at large, and the owner, in addition to fines, shall be liable to any person damaged by his offense.

Infected sheep running at large upon a common highway or on lands not belonging to the owner shall become forfeited to any person who takes them up, and the owner shall have no action at law for recovery.

It is unlawful for a person knowingly to bring into the State cattle affected with pleuro-pneumonia or animals known to be affected with infectious or contagious disease.

The selectmen of towns and aldermen of cities may enforce regulations to prevent the spread of infectious or contagious diseases among domestic animals and report to the Governor.

It is the duty of the Board of Agriculture to prohibit the introduction of animals infected or exposed to contagious disease, and to establish quarantine.

The value of cattle or animals killed by order of the board shall be appraised just

before killing. The limit of appraisal of cattle is \$40 each. If a bovine, after a post-mortem examination, is found to have had tuberculosis or other dangerous disease, the owner shall receive one-half the appraised value; otherwise the owner shall receive full value of the appraisal.

No indemnity shall be paid for a slaughtered animal that has not been owned in the State at least six months previous to the discovery of the disease.

HORTICULTURE.

Any town may appropriate a sum of money to be expended in exterminating worms on shade, ornamental, or forest trees in public parks or highways.

The selectmen have charge of the treatment and the expenditures. (Laws of 1898, No. 156.)

The use on fruit trees or vines of spraying solutions containing less than 3 pounds of unslacked lime to 50 gallons is prohibited. (Laws of 1898, No. 155.)

FERTILIZERS.

The law prescribes the conditions of sale of commercial fertilizers, and also requires that fertilizers costing over \$10 per ton shall be accompanied by a printed statement certifying the number of net pounds of fertilizer in a package, the name, brand or trade-mark, name and address of manufacturer, etc., place of manufacture, chemical analysis showing ingredients, etc.

The law prescribes that manufacturers or importers shall pay \$100 for a license, and are also required to file with the State Treasurer a bond in the sum of \$1,000 for the payment of forfeiture and for the violation of the provisions of this act.

It is unlawful to sell as fertilizer any pulverized leather, raw, steamed, or roasted, etc., without an explicit printed certificate conspicuously placed.

All manufacturers and importers of fertilizers are required to furnish to the director of the Vermont Agricultural Experiment Station a complete list of the brands, and agents selling them, not later than February 1, and on the 1st of each succeeding month until May 1, each additional agent or dealer appointed.

It is the duty of the director to have one analysis or more made of each fertilizer annually, and the result published monthly.

VIRGINIA.

COMMISSIONER OF AGRICULTURE.

The Commissioner of Agriculture is appointed by the Governor, with the advice and consent of the Senate, for a term of 2 years, and his office is required to be at the seat of government. He may employ a clerk, chemist, and geologist. His duties are to investigate matters pertaining to agriculture, horticulture, dairying, cattle and sheep raising, diseases and pests of grain, fruit, and fruit products, and remedies therefor and the prevention thereof, together with the subjects of irrigation and inclosures. He shall distribute seeds and cooperate with the United States authorities. He is required to make an annual report. (Code, secs. 1784-1790.)

He is given control of the analyzing of fertilizers and administration of the law relative thereto. (Sup. to the Code, secs. 1788a, 1790b.)

The salary of the Commissioner of Agriculture is \$1,500 per annum. (Code, sec. 183.)

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of 10 persons, whose principal business must be the cultivation of the soil, to be appointed by the Governor, 1 from each Congressional district of the State. Not more than two-thirds of the members of the board shall belong to any one political party. Their term of office is 4 years. The Department of Agriculture shall be under the management of this board, and the Commissioner of Agriculture is made ex officio a member and secretary and treasurer. An appropriation of \$10,000 a year is made for the purpose of carrying out the provisions of the act. The board is required to meet annually in the city of Richmond, and no member of the board other than the Commissioner of Agriculture shall receive any compensation, but actual expenses in attending its meetings shall be allowed. (Ibid., sec. 1790a.)

FARMERS' INSTITUTES.

Farmers institutes are held under the auspices of the State Board of Agriculture, which devotes certain of its funds to that purpose.

DISEASES OF ANIMALS.

It is the duty of the board of control of the Virginia Agricultural and Mechanical College to protect domestic animals from contagious and infectious diseases, and to establish and maintain quarantine lines and other sanitary regulations; also to cooperate with the live-stock quarantine commissioners and officers of other States, and with the United States Secretary of Agriculture, to establish quarantine lines, etc., and to protect the live-stock industry against Texas or splenic fever.

It is the duty of the board to send a veterinarian to investigate and report any malignant disease and take measures to prevent the disease spreading.

Diseased animals must not leave grounds quarantined.

Notice of quarantine lines must be sent to the Governor.

Railways must disinfect their cars used in transportation of live stock.

It is unlawful for any person to knowingly bring into the State any animal infected with or exposed to contagious disease.

Animals affected with contagious disease shall not run at large or with healthy stock; nor shall they be sold or transferred. (Laws of 1896, No. 327, as amended by Laws of 1900, No. 832.)

The law prescribes that hogs or fowls that die from contagious diseases shall be burned or buried immediately. (Laws of 1896, No. 327.)

HORTICULTURE.

The board of control of the Virginia Agricultural Experiment Station is made a State Board of Crop-pest Commissioners, whose duty it is to appoint a State Entomologist and Pathologist who shall act as State inspector to eradicate and prevent the spread of San José scale. The board shall provide rules and regulations under which the inspector shall proceed to control, eradicate, destroy, and prevent the dissemination of pests.

The board may provide quarantine laws and regulations for the sale and transportation of all nursery stock within or entering the State.

Provision is made for the annual inspection of all nursery stock in the State prior to September 1, and the issuance of certificates, etc. (Laws of 1900, chap. 109.)

FERTILIZERS.

The Commissioner of Agriculture has jurisdiction and care of the fertilizer laws. (Laws of 1890, p. 82.)

The law prescribes the duty of every manufacturer or dealer of commercial fertilizers, provides for the payment of 15 cents per ton as an inspection license fee; provides for the issuance of tags; requires that tags be placed on each bag of fertilizers, etc.

The law provides that the constituent parts of fertilizers shall be printed upon each bag, barrel, or package. Nothing in this act shall restrict sales of acid phosphate, kainit, etc.

The purchaser may request a sample of the seller to send to the Commissioner of Agriculture for analysis. The Commissioner of Agriculture is directed to publish the result of the analysis.

All fertilizers sold in violation of the law shall be seized and held subject to the order of the court. (Laws of 1900, chap. 10.)

WASHINGTON.

BUREAU OF STATISTICS, AGRICULTURE, AND IMMIGRATION.

The Secretary of State is made Commissioner of Statistics, and a Bureau of Statistics, Agriculture, and Immigration is directed to be established in his office. He is required to collect statistics on agriculture, and is empowered to send for persons and papers and examine witnesses under oath. (Const., Art. 2, sec. 34; Code, secs. 2256-2264.)

STATE FAIR.

The State fair is established as a State institution for the purpose of the advancement of stock raising, agriculture, and horticulture in the State. It is required to be held at North Yakima on the last Monday of September of each year. This fair is controlled by a board of five commissioners called the State Fair Commission, to be

appointed by the Governor with the advice and consent of the Senate, for a term of 4 years. A president, a secretary, and treasurer shall be elected by the board for a term of 1 year. This commission has full control of the State fair, with power to make rules and regulations for the same, employ necessary assistants, and award premiums. The office of the commission is located at North Yakima, and the meetings of the commission are required to be held there. The members of the commission receive no compensation beyond mileage paid to them while engaged in the business of the fair. (Code, sec. 2332.)

FARMERS' INSTITUTES.

Farmers' institutes are held voluntarily by the faculty of the agricultural college.

PARIS GREEN.

It is unlawful to offer for sale in the State adulterated or low-grade paris green, London purple, sulphur, or other material or compound for spraying purposes. Paris green is required to contain not less than 50 per cent of arsenic trioxide in combination and not more than 4 per cent of water. Soluble arsenic trioxide and commercial arsenic are required to contain not less than 96 per cent of arsenic trioxide. It is made the duty of the State Commissioner of Horticulture and the county inspectors under his supervision to enforce the provisions of the act, and the State Agricultural Experiment Station is required to analyze all such compounds submitted to it by the State Commissioner of Horticulture. (Laws of 1901, chap. 22.)

DISEASES OF ANIMALS.

The law provides that local boards of health shall cause to be collected all isolated animals and cattle infected with contagious disease, but the provisions of the act shall not apply to sheep in counties where there is a duly appointed sheep inspector.

Local boards of health may order dangerously diseased animals killed and buried at the expense of the town.

The law prohibits the conveyance of infected animals through towns, counties, etc.

The regulations of the State Board of Health take precedence over the regulations of any local board.

The State board has power to establish and maintain quarantine and condemn diseased animals to be killed, without compensation to the owner. (Laws of 1895, act of March 20.)

The law provides for the creation of the office of State Veterinarian, who shall be the professor of veterinary science of the agricultural college and experiment station, and he shall become a member of the State Board of Health. The law prescribes his duties.

The Governor, with the State Veterinarian, may cooperate with the United States authority to carry out the objects of this act. (Laws of 1895, act of March 22.)

The commissioners of the county may appoint a sheep inspector.

In order to transport or convey sheep into the State it is necessary to obtain a certificate from the inspector to the effect that said sheep have been examined and found free from disease within 3 months prior to conveyance.

Sheep must not be removed from one county to another without obtaining a certificate of health within 6 months prior to removal.

It is unlawful to bring into the State any sheep infected with scab or any other contagious or infectious disease.

No owner of any toll bridge or ferryboat shall permit sheep to cross unless the person in charge can show a valid certificate of health. (Laws of 1897, act of February 26.)

HORTICULTURE.

The Commissioner of Horticulture is appointed by the Governor. Before his appointment he must produce a certificate from the faculty of the agricultural college that he is a skilled horticulturist. His office is to be located at Tacoma. His salary is \$1,000 per annum, and allowance is made for necessary expenses not to exceed \$500. He is required to maintain supervisory direction over the horticultural interests of the State and to enforce the laws relating to the prevention and extermination of pests and diseases of horticultural stock and products. His term of office is 4 years. This officer supersedes the former State Board of Horticulture. (Laws of 1897, chap. 119.)

Fruit culturists in any county are authorized to form a horticultural society, and such society is empowered to nominate a qualified person for county fruit inspector,

and the duties of such inspectors are defined. Very full provision is made for the inspection of horticultural stock and products and places, packages, and transportation vehicles used in the packing, storing, and transportation of the same, and for the prevention and extirpation of pests and diseases therein. (Laws of 1897, chap. 119, as amended by Laws of 1899, chap. 127.)

Dealers engaged in the sale or importing of fruit trees, etc., must have a license; application voucher must be made to the commissioner, together with a bond in the sum of \$1,000.

The law provides that the commissioner shall prescribe remedies and publish them in bulletins for distribution to prevent the introduction and spread of pests.

The law provides that the inspector shall disinfect infected premises if the owner does not do so in a specified time.

Appeals may be made to the Commissioner of Horticulture, and his decision shall be final. (Laws of 1899, chap. 127.)

BEES.

It is unlawful for any person to willfully or maliciously place any poison or sweetened substance for the purpose of injuring honey bees in any place where it is exposed to honey bees. (Laws of 1897, chap. 12.)

SUGAR BOUNTY.

The law provides for the payment of 1 cent per pound to anyone engaged in the manufacture of sugar from beets grown in the State, under the condition that it shall contain at least 90 per cent crystallized sugar, and only upon sugar produced from beets for which an average price not less than \$4 a ton has been paid to the producer.

Verified statements must be made to the president of the State agricultural college, whose duty it is to determine the quantity and quality of sugar on which said bounty shall be paid. The sum of \$50,000 is the limit to be paid in any one year.

The benefits of this act accrue to persons erecting a complete sugar factory before November 1, 1901, and the bounty shall be paid for a period of 3 years from the time such factory shall have been completed and in operation. (Laws of 1899, chap. 17.)

WEST VIRGINIA.

STATE BOARD OF AGRICULTURE.

The State Board of Agriculture is composed of one commissioner from each Congressional district and one from the State at large, all to be appointed by the Governor. They must be practical farmers, and not more than 3 shall belong to one political party. The term of office is 4 years. They are required to meet semiannually, and oftener if required. They shall elect a president from their number for a term of 2 years, and a secretary, not of their number, for the same term. They are allowed \$4 a day and actual traveling expenses while attending the meetings of the board. The secretary is allowed a salary of not to exceed \$1,000 a year and actual traveling expenses. The duties of the board are to advance the agricultural interests of the State in every way, promote the formation of agricultural and horticultural societies, circulate information, make reports, and issue a monthly, bimonthly, or quarterly publication containing crop reports and other agricultural matter and statistics. The board is required to report biennially to each session of the legislature. The secretary's office is to be located at the seat of government. The board is also charged with the duty of enforcing the laws against contagious diseases of animals. (Code of 1899, App., pp. 1129-1132.)

FARMERS' INSTITUTES.

Farmers' institutes are to be held, under the direction of the State Board of Agriculture, at such times and places as the board may think proper. (Ibid., p. 1130, par. 5.)

DISEASES OF ANIMALS.

The law provides that the State officers shall cooperate with the United States in the suppression and extirpation of pleuro-pneumonia, and authorizes the Governor to accept the rules and regulations prepared by the Commissioner of Agriculture under and in pursuance of section 3 of an act of Congress approved May 29, 1884.

United States inspectors have the right of inspection, quarantine, and condemnation of animals affected with any contagious disease, etc.

The expenses of any or all measures that may be used to suppress and extirpate pleuro-pneumonia shall be paid by the United States. (Laws of 1891, chap. 53.)

FERTILIZERS.

The law covers the sale and labeling of fertilizers, and gives the standard.

It is required that the manufacturer who offers fertilizers for sale must, before doing so, file with the director of the West Virginia Agricultural Experiment Station a certified copy of the statement required to be made, and deposit with said director a sealed package containing not less than 1 pound of the described fertilizer with an affidavit that it is a fair sample thereof. The law provides for the payment of an analysis fee of \$10, to be paid by the manufacturer, etc., and these fees shall be paid to the treasurer of the West Virginia University for the use of the agriculture experiment station. The director of the experiment station shall immediately after filing the receipt issue a certificate to the party making such payment.

Tags or labels are to be furnished by the director in quantities of 100, or multiples thereof, at 50 cents for every hundred.

The law provides that the director shall publish, by bulletin, the name and location of the manufacturer, and the chemical analysis of every fertilizer analyzed by him. (Ibid., chap. 72.)

WISCONSIN.

STATE BOARD OF AGRICULTURE.

The Department of Agriculture is under the management of the State Board of Agriculture. Its objects are the promotion of the interests of agriculture, dairying, horticulture, manufactures, and the domestic arts. The board consists of one member from each Congressional district and two from the State at large, all to be appointed by the Governor for a term of three years. Not more than two-thirds of the board shall belong to the same political party. They shall not receive any compensation, but shall be reimbursed for expenditures made by them in the discharge of their duties. They are required to meet annually on the first Tuesday of March and to elect at such meeting one of their number as president and another as vice-president, and some person not a member as secretary to hold office one year. The State treasurer is ex officio treasurer of the board. The board is required to hold its office at the seat of government, to conduct all State fairs and regulate the same, award premiums, etc., and report biennially to the Governor. The State is exempt from liability for the debts of the board. Four thousand dollars annually is appropriated for the State board; but before this is made available a certificate must be signed and presented by the president and secretary to the State treasurer that the sale of intoxicating liquor has been prohibited and prevented on the State fair grounds. A like provision is made in regard to the northern Wisconsin State fair. (Sanborn and Berryman's An. Stat., secs. 1456-1458d.)

LOCAL AGRICULTURAL ASSOCIATIONS.

Local agricultural societies are authorized to incorporate, one in each county or by combining two or more counties jointly, by adopting a constitution and by-laws, electing a president, one or more vice-presidents, secretary, and treasurer, and filing a certificate of organization signed by the president and secretary and a copy of the constitution in the office of the register of deeds of the county in which the corporation is organized. (Ibid., sec. 1460.) Police powers are conferred upon State and local agricultural societies. (Ibid., sec. 1466.)

Property owned by the State or any local agricultural society used exclusively for fair grounds is exempt from taxation. (Ibid., sec. 1038, par. 4.)

HORTICULTURAL SOCIETIES.

The Wisconsin State Horticultural Association is incorporated, and its duties are to aid in the formation and maintenance of county and local horticultural societies and promote the horticultural interests of the State, by holding meetings and discussions, and by the collection and dissemination of information. It is authorized to hold \$5,000 worth of property and receives an appropriation of \$1,750 annually from the State. The executive committee consists of the president, secretary, treasurer, and one member from each Congressional district in the State to be chosen by the local

horticultural societies. The duties of such committees are prescribed and the secretary is required to report biennially to the Governor. (Ibid., secs. 1459-1459b.)

FARMERS' INSTITUTES.

The board of regents of the State University is empowered to hold farmers' institutes and make rules and regulations for the same.

DISEASES OF ANIMALS.

The law provides for the appointment by the Governor of a veterinary surgeon, whose duty it shall be to suppress and prevent the introduction and spread of contagious and infectious diseases among domestic animals, and cooperate with the State Board of Health, etc.

The State Veterinarian has authority to quarantine any premises upon which diseased animals are, or that are suspected to be infected with disease, and it is unlawful to remove diseased animals from such quarantine. The law provides for punishment for violating this law.

The law provides for the destruction of diseased animals, and further provides, in case of horses affected with glanders, that the appraisal shall not exceed \$50.

It is unlawful to import domestic animals affected with, or that have been exposed to, infectious diseases.

Compensation for animals killed is provided for to the extent of two-thirds of the appraised value, and the State Veterinarian is given authority to settle with the owner if he admits that the appraised value is greater than the real value. (Laws of 1897, sec. 1492a.)

HORTICULTURE.

The law authorizes the director of the agricultural experiment station of the University of Wisconsin to inspect through his agent any nursery, fruit, or garden plantation, etc., that he suspects of being infested with San Jose scale or other injurious insects and fungous diseases.

The law prescribes the duty of the agent in regard to inspection and what steps are to be taken for eradication.

It is unlawful for any person to grow or offer for sale any nursery stock known to be infected with the San Jose scale, etc.

The law provides for the issuance of certificates, and the furnishing of tags or labels, and provides that the sum of 30 cents per 100 may be charged for the same.

A report must be made by the director of the experiment station to the Secretary of State on the last week day of May of each year. (Laws of 1899, chap. 180.)

FERTILIZERS.

The law provides that fertilizer costing over \$10 a ton shall bear a printed statement of the number of net pounds contained therein, name or trade-mark, name of manufacturer, place of manufacture, etc., and gives the standard.

The sum of \$25 must be paid annually to the director by every manufacturer, etc.

A sample of every fertilizer exposed for sale must be analyzed annually. (Rev. Stat., 1898, secs. 1494c., 1494d., 1494e.)

BEES.

The law provides that the Governor may appoint, under certain conditions, for the period of two years, a State Inspector of Apiaries.

The inspector when notified shall examine all reported apiaries to ascertain the presence of disease, etc.

It is the duty of the inspector to give the owners full instruction as to how to treat said cases.

It is the duty of the inspector to visit all diseased apiaries a second time, and if necessary, destroy the same.

It is unlawful for the owner of the diseased apiary to sell or give away any bees, etc., and he is liable to a fine if he violates the law.

The law prescribes that the Inspector of Apiaries shall make an annual report to the Governor, and what that report shall contain. (Laws of 1897, chap. 150.)

SUGAR BEETS.

The law provides that the State University shall investigate the most suitable localities for growing sugar beets, and provides that each member of the legislature may

furnish the agricultural experiment station of the State University a list of 100 farmers desirous of testing beets, etc. Seed is furnished free.

An appropriation of \$500 is made to the board of regents of the State university for purchasing and mailing beet seed. (Laws of 1897, chap. 230.)

The law exempts all factories or plants for the manufacture and refining of sugar from beets from taxation, except special assessments in cities and villages, for the term of five years from the passage and publication of the act. (Laws of 1897, chap. 158.)

The standard weight of a bushel of beets is 50 pounds. (Rev. Stat. of 1898, sec. 1655.)

WYOMING.

LOCAL AGRICULTURAL SOCIETIES.

The citizens of any county, or of two counties jointly, may organize a county stock and agricultural society, not more than one in a county, with corporate powers, and may purchase and hold real estate to be devoted solely to the objects of the association, which while so used is exempt from taxation. (Rev. Stat. of 1887, sec. 644; Rev. Stat. of 1899, sec. 3246, sec. 3225, par. 14; but see acts of 1895, chap. 52.)

Such societies are directed to hold annual meetings for the election of officers, and to have their records carefully kept by the secretary. Such records may be read as evidence in any court. (Rev. Stat. of 1887, sec. 645; Rev. Stat. of 1899, sec. 3247.)

Three or more persons may form a corporation to establish and maintain grounds for the exhibition of live stock and agricultural, mechanical, and mineral products, with power to offer and award premiums. (Ibid., sec. 566; Rev. Stat. of 1899, sec. 3226.)

Any corporation so organized is entitled to receive annually from the State 25 per cent of the first \$500 paid in premiums, 10 per cent of any additional amount up to \$1,000, and 5 per cent of the excess up to \$5,000.

Such corporations have police powers over their fair grounds. (Rev. Stat. of 1887, secs. 578, 646; *ibid.*, p. 3227.)

AGRICULTURAL STATISTICS.

To the Secretary of State are assigned the duties of Commissioner of Immigration and State Statistician. He is required to collect, publish, and distribute information on all matters concerning the agricultural, manufacturing, commercial, stock, and mining interests of the State; and he is authorized to obtain from county officers and otherwise statistics concerning agriculture and live stock. (Law of 1888, chap. 34; const., art. 21, sec. 3; law of admission, approved July 10, 1890, 26 U. S. Stat., 222, sec. 21.)

DISEASES OF ANIMALS.

The law provides that the Governor shall appoint a Board of Sheep Commissioners, to consist of three members. This board has power to district the State for inspection purposes, and provide for inspection when necessary. The duties of the board are prescribed.

Upon complaint being made to the board that contagious or infectious diseases exist in any locality in any other State or Territory, the said board shall cause an investigation of such complaint, and if the complaint is well founded the facts shall be certified to the Governor of the State. The Governor shall by proclamation, upon the receipt of such certificate, designate such localities diseased and class of live stock infected, and prohibit the importation from such localities of live stock affected or that has been exposed to contagion, except such stock as has been held in quarantine under the control and supervision of the State Veterinary Surgeon, or a sheep inspector, for a period of 90 days. (Laws of 1899, chap. 28.)

HORTICULTURE.

The law provides for the destruction of diseased or infested fruit trees, etc., and fixes a penalty. (Laws of 1897, chap. 71.)

BET SUGAR FACTORIES.

The law provides that the property engaged in the manufacture of beet sugar, or any of the products of the sugar beets, shall be exempt from taxation annually during the actual use of such property for that purpose for a period of 10 years. No factory so engaged shall be entitled to such exemption unless at least 75 per centum of the sugar beets consumed during each year shall have been grown in Wyoming, provided a sufficient supply can be obtained in the State. (Laws of 1897, chap. 50.)

PART V.

DIGEST OF LAWS AND COURT DECISIONS RELATING
TO GRAIN INSPECTION, ELEVATORS,
AND WAREHOUSES.

A REPORT PREPARED UNDER THE DIRECTION OF THE INDUSTRIAL COMMISSION.

BY

ROBERT CHRISTY.



LETTER OF TRANSMITTAL.

To the Industrial Commission:

GENTLEMEN: I have the honor to transmit herewith a digest of the grain inspection, elevator, and warehouse laws of certain of the grain-producing States, together with citations of decisions of the Supreme Court of the United States and of the supreme courts of such States as have judicially construed such laws.

I found on examining the laws relating to common carriers, both State and interstate, that when their obligation of transportation of property ceased, as it did when it reached the elevator or warehouse to which it was consigned, the duties of the warehouseman began, and his right of custody attached and became and continued distinct and exclusive, subject, however, to the State laws regulating the same.

I find this connection I beg leave to quote from the learned, exhaustive, and well-reasoned opinion of Justice Tuley, of the circuit court of Cook County, Ill., handed down as late as January 10, 1901. He says: "Public warehouses have come to be so important a factor in interstate commerce that it was only a question of time when the national legislature would assume their regulation." I take the liberty of suggesting, however, that it would be impracticable to place this control under the existing Interstate Commerce Commission without radically changing the scheme of its construction, both base and superstructure.

The learned justice, in the opinion just alluded to, formulates a charge against the public warehouseman of the present day, in the following vigorous and trenchant language: Referring to the amendment of section 6 of the act of the Illinois legislature, approved April 25, 1871, "to give effect to article 13 of the constitution of this State," he says, "It is clear in the light of the legislation of this State, and the debates of the constitutional convention, and the history of the grain trade, that the framers of the constitution never intended to create a State institution or agency a public warehouse, which such warehouseman or trustee could manage or control in his own interest and to the injury of producers, shippers, and of the general public." Following is the provision in the amendatory act of May 26, 1897, that seems to justify the foregoing severe comment.

"The proprietors, lessees, or managers of public warehouses of Class A may store in such warehouses owned, leased, or managed by them, grain of their own, and mix it with the grain of others of like grade, stored therein, and may purchase warehouse receipts representing grain on store in such warehouses owned, leased, or managed by them."

The heart of the heated contest now raging in Chicago beats immediately around the privilege conferred by this amendment.

The Supreme Court of the United States seems to have contemplated the necessity of ultimate interference by the Federal Congress in this matter of public warehouses for the storage of grain and other property.

In *Munn v. Illinois*,¹ it was held: "Where warehouses are situated and their business is carried on exclusively within a State, she may, as a matter of domestic concern, prescribe regulations for them, notwithstanding they are used as instruments by those engaged in interstate, as well as in State commerce, and until Congress acts in reference to their interstate relations, such regulations can be enforced, even though they may indirectly operate upon commerce beyond her immediate jurisdiction."

It is a matter of judicial history that the Supreme Court of the United States has consistently adhered to the principle laid down in *Munn v. Illinois*, when, alluding to the reserved power of the States in respect to the management of their domestic affairs, it was held that "under the powers inherent in every sovereignty a government may regulate the conduct of its citizens toward each other, and, when necessary for the public good, the manner in which each shall use his own property;" notably in *Budd v. New York* (1892), 143 U. S., 517, and *Brass v. North Dakota* (1894), 153 U. S., 891.

¹94 U. S., 113. (October term, 1876.)

Both the lawmakers and the expounders of the law have uniformly, within their respective spheres, when dealing with the subject of public elevators and public warehouses, displayed an earnest desire to protect the producer and shipper of grain; yet nevertheless, at the very dawn of the twentieth century, a learned judge, in delivering an opinion in a cause originating in the "practically greatest railway center in the world," felt constrained to declare that "the protection the law gives to the producers, shippers, and receivers of grain is the protection the wolf gives to the lamb." These words were spoken by one familiar with the grain conditions of that city, not only from long residence, but from judicial investigations in which he had from time to time participated. They are therefore entitled to serious consideration.

RÉSUMÉ OF THE LAWS.

In all of the States that have attempted to form a complete and perfect system for the regulation of public elevators and public warehouses there is a very considerable similarity in the leading features of the laws composing such system, which differ but little in the powers conferred upon the executive officers and in the duties imposed upon the warehousemen, but chiefly in the mode of selection of such officers, and their designations.

It is to be presumed, too, that this similarity is at least partly due to the fact that the system adopted by the State of Illinois, the oldest of these States, and with a city most advantageously situated for the reception and reshipment of grain and commodities of all kinds produced in the Northwest, was selected as the common standard of imitation, departures from this common standard being due to the special conditions of environment existing in the various States.

The following are the usual subjects of legislative enactment, to wit:

Classification and definition of public and private warehouses.

The licensing of public warehouses.

Requiring bonds with approved security by warehousemen.

Penalties for conducting business without a license.

Prohibition against unfair discrimination toward those delivering grain to be stored, and the mixing of grain of different grades under any circumstances.

Requiring the issuance of warehouse receipts upon the receiving of grain into and cancellation of such receipts upon the delivery of grain out of the warehouse.

Making it unlawful to duplicate the number borne by receipts in any given year.

Providing for the inspection of grain, both upon delivery to and delivery from a warehouse.

Provision for private bins in warehouses and the storing of grain therein.

Forbidding warehouseman to issue receipts unless grain is in his actual custody, or to limit his liability imposed by law by any language in a receipt, under severe penalties.

Prompt delivery of stored grain upon demand of holder of receipt, accompanied by tender of charges required of warehouseman, and unreasonable delay punished by prescribed damages.

Weekly and daily statements required to be made out by warehouseman and conspicuously posted and published, showing the amount of each kind and grade of grain in store, with divers other particulars touching the condition and management of his business.

A chief inspector and necessary assistants provided for, and required to take official oaths and give bonds with approved sureties.

Rates of storage for each year required to be published by warehouseman, within a maximum rate established by law.

Loss by fire or by the heating of grain in elevators not to be chargeable against the warehouseman, if he had used due care and diligence in respect thereto.

Tampering with grain by warehouseman, while in his custody, to secure profit to himself, severely punished—such as mixing grain of different grades; selecting different qualities of the same grade for the purpose of storing; attempting to deliver grain of one grade for another.

Assuming to act as inspector without proper authority, misconduct of authorized inspector in discharge of his duties, and bribing an inspector, are declared crimes and severe penalties prescribed.

Right of appeal is given to interested parties from the inspection of grain if dissatisfied therewith to a tribunal whose decision is made final.

All unlawful combinations between warehousemen and other persons are declared crimes and punishments prescribed.

Warehouse receipts are made negotiable, their sale to be deemed a valid transfer of the property represented by such receipts.

Issuing receipts in any respect fraudulent is declared to be a crime.

A proper number and standard of grades for the inspection of grain are annually to be made, not alterable unless after public notice.

Designated State officers are charged with the duty of examining into the condition and management of all public warehouses and public elevators, and clothed with ample authority to inspect scales in use, to require written reports, and to compel the attendance of witnesses and the production of books of account and other written evidences required to be kept by a warehouseman.

Cancellation of licenses of public warehouseman upon satisfactory proof of misconduct in his business provided for. *Qui tam* actions are preserved and regulated; also suits by individuals for private damages sustained by reason of the acts of warehousemen, even though such acts involve offenses against the public, and may have been prosecuted and punished as such, or even when the accused is acquitted.

The selling of grain by sample has not been interfered with by law.

After long experience in the mode of selecting the officers having control of the inspection of grain and the supervision of the condition and management of public warehouses by appointment of the governor by and with the advice and consent of the senate, some of the States require such officers to be chosen by the qualified electors, as other State officers are chosen. One State has gone so far as to extend to the recognized political parties by statute the privilege of putting the candidates in nomination, as for other State offices. (Act of Minnesota, approved March 6, 1899.)

Respectfully submitted.

ROBERT CHRISTY.

I.

LAWS RELATING TO PUBLIC ELEVATORS AND WAREHOUSES.

CALIFORNIA.

Receipts.—A warehouseman is forbidden to issue any receipt for property unless it is bona fide in store and under his control at the time of issuance.

Money loaned.—The same rule applies, and like conditions must exist, in issuing a receipt for money loaned or other indebtedness.

Second receipt.—The issuing of a second receipt, while a former receipt for the same property is outstanding and uncanceled, is made unlawful.

Selling property.—Selling, encumbering, shipping, transferring, or in any manner removing property beyond the immediate control of the warehouseman, is forbidden, unless the holder of the receipt for such property consent thereto by writing, in ink, indorsed on the receipt.

Receipts classified.—Receipts are divided into two classes: (1) Transferable or negotiable; (2) nontransferable or nonnegotiable. An indorsement of the first class is deemed a valid transfer of the property represented by the receipt.

Contents of receipts.—All warehouse receipts for property stored must distinctly state on their face for what they are issued, as also the brands and distinguishing marks; and in the case of grain the number of sacks and number of pounds and kind of grain; also the rate of storage per month or season charged for storing the same.

Delivery of property.—No warehouseman is permitted to deliver property without indorsing upon the back of the receipt given for the same, in ink, the amount and date of delivery. In case of nonnegotiable receipts no delivery of property shall be made except upon the written order of the person to whom the receipt was issued.

Nonnegotiable receipts shall have printed across their face in bold, distinct letters, in red ink, the word "nonnegotiable."

Loss by fire.—No warehouseman or person doing a general storage business is to be held for loss or damage by fire while the property is in his custody, provided reasonable care and vigilance be used to protect and preserve the same.

Punishment.—The foregoing provisions are from an act approved April 1, 1878, and any violation of the same is declared a felony, subjecting to indictment, and on conviction to a fine not exceeding \$1,000, or imprisonment in the State prison not exceeding five years.

The rights of individuals aggrieved by such violations are preserved, and actions may be brought before any court of competent jurisdiction to recover the damages sustained, whether the offender shall have been convicted or not.

ILLINOIS.

ARTICLE XIII OF THE CONSTITUTION OF 1870.

SEC. 1. All elevators or storehouses where grain or other property is stored for a compensation, whether the property stored be kept separate or not, are declared to be public warehouses.

SEC. 2. The owner, lessee, or manager of each and every public warehouse situated in any town or city of not less than 100,000 inhabitants shall make weekly statements, under oath, before some officer to be designated by law, and keep the same posted in some conspicuous place in the office of such warehouse, and shall also file a copy for public examination in such place as shall be designated by law, which statement shall correctly set forth the amount and grade of each and every kind of grain in such warehouse, together with such other property as may be stored therein, and what warehouse receipts have been issued and are, at the time of making such statement, outstanding therefor, and shall, on the copy posted in the warehouse, note daily such changes as may be made in the quantity and grade

of grain in such warehouse, and the different grades of grain shipped in separate lots shall not be mixed with inferior or superior grades without the consent of the owner or consignee thereof.

SEC. 3. The owners of property stored in any warehouse or holder of a receipt for the same shall always be at liberty to examine such property stored and all the books and records of the warehouse in regard to such property. (C., B. & Q. R. R. Co. v. Hoyt, 1 Brad., 885.)

SEC. 4. All railroad companies and other common carriers on railroads shall weigh or measure grain at points where it is shipped and receipt for the full amount, and shall be responsible for the delivery of such amount to the owner or consignee thereof at the place of destination.

SEC. 5. All railroad companies receiving and transporting grain, in bulk or otherwise, shall deliver the same to any consignee thereof, or any elevator or public warehouse to which it may be consigned, provided such consignee or the elevator or public warehouse can be reached by any track owned, leased, or used, or which can be used, by such railroad companies; and all railroad companies shall permit connections to be made with their tracks, so that any such consignee and any public warehouse, coal bank, or coal yard may be reached by the cars on said railroad.

SEC. 6. It shall be the duty of the General Assembly to pass all laws necessary to prevent the issue of false and fraudulent warehouse receipts and to give full effect to this article of the constitution, which shall be liberally construed so as to protect producers and shippers; and the enumeration of the remedies herein named shall not be construed to deny to the General Assembly the power to prescribe by law such other and further remedies as may be found expedient, or to deprive any person of existing common-law remedies.

SEC. 7. The General Assembly shall pass laws for the inspection of grain, for the protection of producers, shippers, and receivers of grain and produce.

AN ACT TO REGULATE PUBLIC WAREHOUSES, AND THE WAREHOUSING AND INSPECTION OF GRAIN, AND TO GIVE EFFECT TO ARTICLE 13 OF THE CONSTITUTION OF THIS STATE. (APPROVED APRIL 25, 1871.)

Classification of public warehouses.—Section 1 divides public warehouses into three classes, designating them, respectively, as Class A, B, and C.

Section 2 provides that Class A shall embrace all warehouses, elevators, or granaries, located in cities of not less than 100,000 inhabitants, in which grain is stored in bulk, and in which the grain of different owners is mixed together, or in which grain is stored in such manner that the identity of different lots or parcels can not be accurately preserved.

Class B embraces all other warehouses, elevators, or granaries in which grain is stored in bulk and the grain of different owners mixed together.

Class C embraces all other warehouses or places where property of any kind is stored for a consideration.

License and bond.—Section 8 requires a license to be taken out before any business is transacted in a warehouse of Class A.

Section 4 requires bond to be given by a warehouseman of Class A in the penal sum of \$10,000.

Section 5 imposes a fine of not less than \$100 nor more than \$500 for each and every day business is carried on without a license.

Storage of grain.—SEC. 6. It shall be the duty of every warehouseman of Class A to receive for storage any grain that may be tendered to him in the usual manner in which warehouses are accustomed to receive the same in the ordinary and usual course of business, not making any discrimination between persons or between himself as the owner of grain stored in such house and other persons desiring to avail themselves of warehouse facilities; such grain, in all cases, to be inspected and graded by a duly authorized inspector, and to be stored with grain of a similar grade received at the same time as near as may be. In no case shall grain of different grades be mixed together while in store. But if the owner or consignee so requests, and the warehouseman consent thereto, his grain of the same grade may be kept in a bin by itself, apart from that of other owners, which bin shall thereupon be marked and known as a "separate bin." If a warehouse receipt be issued for grain so kept separate, it shall state on its face that it is in a separate bin, and shall state the number of such bin; and no grain shall be delivered from such warehouse unless it be inspected on the delivery thereof by a duly authorized inspector of grain.

Nothing in this section shall be so construed as to require the receipt of grain into any warehouse in which there is not sufficient room to accommodate or store it properly, or in cases where such warehouse is necessarily closed.

Amendment.—The proprietors, lessees, or managers of public warehouses of Class A may store in any such warehouses owned, leased, or managed by them grain of their own and mix it with the grain of others of like grade stored therein, and may purchase warehouse receipts representing grain on store in such warehouses owned, leased, or managed by them; but when any such proprietor, lessee, or manager shall desire to so store and mix his own grain in any such warehouse or warehouses owned, leased, or managed by him, or to purchase receipts for grain on store therein, he shall so inform the chief inspector of grain of the county in which such warehouse or warehouses are located, and said chief inspector shall thereupon place and keep in such warehouse or warehouses, whenever necessary so to do, one or more assistant inspectors, who shall, in addition to their usual duties as assistant inspectors, have general supervision over the storing and care of grain stored in such warehouse or warehouses, under such rules and regulations as shall be made by the Railroad and Warehouse Commissioners; and said commissioners are hereby invested with full power and authority to make all rules and regulations concerning the storing, handling, and delivery of grain in warehouses of Class A in which the proprietors, lessees, or managers thereof store their own grain as may in their opinion be necessary to prevent any fraud upon or discrimination against other depositors of grain in their said warehouses, and to prevent any proprietor, lessee, or manager of such warehouse from securing to himself as the owner of grain stored therein any benefit or advantage over any other depositor of grain stored in such warehouse or warehouses. (As amended by act approved May 26, 1897, in force July 1, 1897. Laws of 1897, p. 802.)

Warehouse receipts.—Section 7 provides that the owner or consignee of grain in a warehouse of Class A shall be entitled to receive a warehouse receipt, all charges that are liens on such grain having been paid, such receipt to state on its face, among other things, the quantity and inspected grade of the grain: that it has been received in store, and is deliverable upon the return of the receipt properly indorsed. This section also requires all receipts for grain to be consecutively numbered, and prohibits the issuing of two receipts bearing the same number from the same warehouse during any one year. The case of lost receipts is provided for.

Section 8 requires that before delivery of grain from store the surrendered receipt shall be plainly marked across its face with the word "Canceled," with the name of the person canceling the same.

Section 9 contains divers provisions relating to warehouse receipts tending to prevent fraud in respect thereto and to preserve the integrity thereof.

Section 10 prohibits a warehouseman from inserting in receipts issued by him any language limiting his liability or responsibility as imposed by the laws of the State.

Section 11 provides for the prompt delivery by the warehouseman of the property stored upon the return of the receipt issued by him properly indorsed and tender of all proper charges. In case of default in delivery the warehouseman is made liable to the owner of the receipts for damages for such default in the sum of 1 cent per bushel, and in addition thereto 1 cent per bushel for each and every day such neglect or refusal continues.

Statements.—Section 12 requires from each warehouseman of Class A weekly statements to be made out and posted up conspicuously in the business office of his warehouse, showing the amount of each kind and grade of grain in store in his warehouse; also a similar statement, under oath, to the warehouse registrar appointed under the act. A daily statement is also required to be made to the registrar of the amount of each kind and grade of grain received in store on the previous day; also the amount of each kind and grade of grain delivered or shipped by such warehouseman during the previous day and what warehouse receipts have been canceled, etc.

Inspection and grading of grain.—Section 13 contained a full and complete statement as to the grade of the several kinds of grain accustomed to be stored in public warehouses, but was amended by an act approved April 15, 1873.

This amendatory act required the Board of Railroad and Warehouse Commissioners to establish a proper standard for the inspection of grain, with authority to change the same from time to time after public notice had been given of the contemplated change, provided that no mixture of old and new grades should be permitted while in store.

The amendatory act also required the commissioners to appoint three discreet and competent persons to act as a committee of appeals in every city wherein a warehouse of Class A was located, with power to make all necessary rules governing the manner of appeals.

Section 4 of the amendatory act was amended by an act approved June 26, 1885, which required the members of the committee of appeals to take an oath and execute a bond in the penal sum of \$5,000 each, to be approved by the Railroad and

Warehouse Commissioners, before entering upon their duties, and prohibited the appointment of any person on such committee who was a purchaser or receiver of grain or other articles to be passed upon by the committee.

Section 14 was amended by an act approved June 7, 1897, as follows:

Paragraph 1 makes it the duty of the Governor to appoint, by and with the advice and consent of the Senate, a suitable person, not a member of the board of trade, nor interested in any warehouse in the State, a chief inspector of grain, to hold his office for two years, in every city or county in which is located a warehouse of Class A or Class B. As to Class B, the appointment only to be made on the recommendation of the commission, such recommendation to be dependent upon the request of the county commissioners or board of supervisors of the county.

Paragraph 2 confers upon the chief inspector the duty of a general supervision over the inspection of grain, under the advice and direction of the commission.

Paragraph 3 authorizes the chief inspector to nominate to the commission, and the latter to appoint, a suitable number of persons qualified to act as assistant inspectors.

Paragraphs 4 and 5 require the chief inspector to take an official oath and to execute a bond in the sum of \$50,000 when appointed for any city in which is located a warehouse of Class A, and in the sum of \$10,000 when appointed for any other city or county; each assistant to take a like oath, and execute a bond in the sum of \$5,000. Such bonds are to be executed with sureties to be approved by the commission.

Paragraphs 6 and 7. All inspectors of grain and other employees in connection therewith are to be governed in their respective duties by such rules and regulations as may be prescribed by the board of commissioners, which board is empowered to fix their compensation, to make rules and regulations, and to fix the rate of charges for the inspection of grain and the manner of collection thereof.

Paragraphs 8 and 9 authorize the board of commissioners to appoint a warehouse registrar and necessary assistants; to have a general supervision and control over them, and prescribe their duties and fix their compensation.

Paragraph 10. The board of commissioners, upon complaint in writing, supported by reasonable and satisfactory proof, is empowered to remove any person appointed under this act for official misconduct, and to appoint his successor.

Paragraph 11. All necessary expenses incident to the inspection of grain, and to the office of registrar, are deemed expenses of the inspection service, and are required to be included in the estimate of expenses of such service and to be paid from the funds collected for the same.

Storage rates.—Section 15 requires each warehouseman of Class A to publish during the first week of January of each year, in one or more newspapers published in the city in which his warehouse is located, a table or schedule of rates for the storage of grain in his warehouse during the ensuing year. It likewise fixes the maximum charges for storage, which are modified, however, in case of grain damp or liable to early damage, as indicated by its inspection when received.

Loss or damage by fire or from heating.—Section 16 relieves the public warehouseman from loss or damage to property by fire while in his custody in case he has exercised reasonable care and vigilance to protect the same; and likewise relieves him from liability for damage to grain by heating, if it can be shown that he has exercised proper care in handling and storing the same.

(This section contains other provisions, embracing both Class A and B warehousemen, to prevent injustice to them when grain is discovered to be out of condition, etc.)

Tampering with grain.—Section 17 declares it to be unlawful for any public warehouseman to mix any grain of different grades together, or to select different qualities of the same grade for the purpose of storing or delivering the same, or to attempt to deliver grain of one grade for another, or in any way to tamper with grain while in his possession or custody with a view of securing any profit to himself or any other person; and in no case is he permitted to mix grain of different grades together while in store.

Examination of property in store.—SEC. 18. Owners of property, or persons interested therein, and authorized inspectors thereof are authorized to examine all property stored in any public warehouse during ordinary business hours.

Scales.—All scales used for weighing property in public warehouses are made subject to examination and test by any authorized inspector or sealer of weights and measures at any time when required by any person whose property has been or is to be weighed on such scales.

The use of scales found to be in an imperfect or incorrect condition, until they have been found correct and properly sealed, by any warehouseman, makes him liable to be proceeded against. (See Criminal Code, sec. 101, "False weights and measures.")

Inspection of grain before storing.—SEC. 19. In all places where there are legally appointed inspectors, grain is required to be inspected before the proprietor or manager of a Class B warehouse is permitted to receive and mix it with the grain of other owners.

Penalties for certain offenses.—Section 20 provides that any person who shall assume to act as an inspector of grain without being duly appointed and sworn shall be held to be an imposter, and punished by a fine of not less than \$50 nor more than \$100 for each attempt to inspect grain, to be recovered by action before a justice of the peace.

This section further provides that any authorized inspector guilty of neglect of duty, or who knowingly or carelessly inspects or grades any grain improperly, or accepts money or other consideration for any neglect or improper performance of any duty as such inspector, and the person who improperly influences him thereto, shall be deemed guilty of a misdemeanor and liable to a fine of not less than \$100 nor more than \$1,000, in the discretion of the court, or shall be imprisoned in the county jail not less than three nor more than twelve months, or both, in the discretion of the court.

Withholding grain from storage.—Section 21 provides that in case any owner or consignee of grain be dissatisfied with the inspection thereof, or from any cause desires it should not pass into store, it shall be withheld upon his giving notice to the person or corporation in possession and paying accrued charges. If such notice be given to a railroad, the grain must be removed from its cars within 24 hours. If notice be given to the warehouseman that the grain is to be withheld, and the latter receive the same, he is made liable to the owner for double the market value of such grain.

Unlawful combinations.—Section 22 makes it unlawful for warehousemen to enter into combination with any corporation or with any individual whereby the property of any person is to be delivered to any public warehouse contrary to the direction of the owner, his agent, or consignee.

Suits against warehousemen.—Section 23 authorizes any person injured by the violation of any provision of the act by a warehouseman of Class A to bring suit upon his bond in the name of the people of the State for his own use.

This section likewise makes it the duty of the prosecuting attorney of the county in which criminal prosecutions have been brought against a warehouseman for the violation of any of the provisions of the act to prosecute the same to a final issue.

Warehouse receipts assignable.—Section 24 makes warehouse receipts for property stored in any class of public warehouses transferable by indorsement, which indorsement operates as a valid transfer of the property represented by the receipt.

Fraud.—Section 25 makes it a crime for any public warehouseman to issue a receipt for property not actually in store, or a receipt in any respect fraudulent, or to remove any property from store (except to preserve it from fire or sudden danger) without the return and cancellation of all outstanding receipts, and imposes, in addition to any other penalty prescribed by the act, upon conviction, imprisonment in the penitentiary for not less than one nor more than ten years. (See Criminal Code, ch. 38, secs. 124, 125.)

Copies of the act to be posted.—Section 27 requires every proprietor or manager of a public warehouse to keep posted up at all times in a conspicuous place in his business office a printed copy of the act.

Delivery of grain.—By section 5 of the act approved April 15, 1873, it was forbidden to deliver any grain from store in any warehouse of Class A for which warehouse receipts had been issued except upon the return of such receipts stamped or otherwise plainly marked by the warehouse registrar with the words "registered for collection," and the date thereof.

Board of Railroad and Warehouse Commissioners.—The Board of Railroad and Warehouse Commissioners, established by an act approved April 18, 1871, is composed of three persons appointed by the Governor, by and with the advice and consent of the Senate. Their term of office is two years. Each member is required to make and subscribe an affidavit in a form prescribed and to give a bond in the penal sum of \$20,000, with security to be approved by the Governor. Their salary is not to exceed the sum of \$3,500 each per annum. They are empowered to appoint a secretary. Any person is rendered ineligible for appointment who is connected with any railroad company or warehouse, or directly interested in any stock, bond, or other property of or in the employ of any railroad company or warehouseman.

It is made the duty of every owner, lessee, and manager of every public warehouse in the State to furnish in writing, under oath, at such times as the commissioners may require and prescribe, a statement concerning the condition and management of his business as such warehouseman.

The commissioners are required to make an annual report to the Governor of

their doings for the preceding year, and also to examine any particular subject connected with the condition and management of railroads and warehouses whenever the Governor shall direct, and report to him in writing, with their opinion thereon and their reasons therefor.

The commissioners are required to examine into the condition and management and all other matters concerning the business of railroads and warehouses in the State, so far as the same pertain to the relation of such roads and warehouses to the public, and to the accommodation and security of persons doing business therewith; and to prosecute, or cause to be prosecuted, all corporations or persons guilty of violations of the laws of the State.

Power is conferred upon the commissioners to hear and determine all applications for the cancellation of warehouse licenses, and if it shall appear that any warehouseman has been guilty of violating any law of the State concerning the business of public warehousemen the commissioners may cancel and revoke his license.

The commissioners are authorized to examine and inspect the property, books, accounts, papers, and proceedings of all railroad companies and public warehousemen at all times during business hours, and to examine under oath or affirmation the owners, managers, lessees, agents, and employees of public warehouses, and other persons, concerning any matter relating to the condition and management of such business.

In making any examination contemplated by the act, the commissioners are empowered to issue subpoenas for, administer oaths to, and, when necessary, compel the attendance of witnesses. It is a misdemeanor for any witness to neglect or refuse to obey the process of subpoena.

The act provides penalties against officers, agents, and employees of railroad companies, and against owners, lessees, managers, and employees of warehouses for willfully neglecting to make and furnish any report required by the act, or willfully or unlawfully hindering, delaying, or obstructing the commissioners in the discharge of their duties; to wit, not less than \$100 nor more than \$500 for each offense, and a like penalty for every period of ten days of such willful neglect or refusal.

It is made the duty of the Attorney-General and of the State's attorney in every circuit or county to institute and prosecute all suits and proceedings, when directed thereto by the commissioners, involving a violation of any law of the State concerning railroad companies or warehouses, or the officers, employees, owners, operators, or agents of any such companies or warehouses. *Qui tam* actions are saved from the operation of the act.

The act is not to be so construed as to waive or affect the right of any person injured by the violation of any law in regard to railroad companies or warehouses from prosecuting suits for his private damages in any manner allowed by law.

KANSAS.

Private and public warehousemen.—All persons who shall keep a warehouse in the State for the storing of grain in a separate bin, distinct from the grain of all other persons, are denominated "private warehousemen," and all persons keeping a warehouse for the storing of grain in bulk, and in which the grain of different owners shall in any way be mixed, "public warehousemen."

Receipts.—Private and public warehousemen, receiving grain into store, on the demand of the owner are required to deliver to him a receipt, setting forth the quantity, kind, and grade of such grain, the receipt to be prima facie evidence against the warehouseman in case of suit being brought.

Receipts are to be consecutively numbered and not duplicated during the same calendar year. Provision is made for the duplication of lost receipts, but the new receipts are to be marked "duplicate." No receipt is to be issued unless grain is actually in store, and then only for the true amount thereof.

Surrendered receipts must be canceled, and never thereafter put in circulation.

The violation of these provisions in regard to such receipts, willfully, is deemed a felony, and the offender, on conviction, is liable to a fine of not less than \$1,000 nor more than \$5,000, and to imprisonment in the penitentiary not less than one nor more than five years.

Warehouse receipts are negotiable by indorsement to the same extent as bills of exchange and promissory notes.

A warehouseman is forbidden to insert in a receipt any language limiting or modifying his liabilities as imposed by law.

Right to visit scales.—All persons interested in grain stored in a warehouse are entitled to visit it and inspect every part containing grain, and shall have the right to inspect and test the scales on which such grain is weighed.

Right to examine bins.—All persons authorized by law to inspect or grade grain shall have the right to visit during business hours and examine all the bins of each warehouse and the grain therein.

Duties of railway companies.—Railway companies are prohibited from delivering any grain into any warehouse excepting the one to which it was consigned.

State grain-inspection department.—A department of record for the inspection and weighing of grain is established, called the State Grain-inspection Department.

Chief inspector.—The Governor appoints a suitable person, subject to confirmation by the senate, to act as Chief Inspector of Grain for the State.

Duties of the chief inspector.—It is the duty of the chief inspector to have a general supervision of the inspection and weighing of grain; as required by the laws of the State; to supervise the handling, inspecting, weighing, and storage of grain; to establish such necessary rules and regulations for the weighing, grading, and inspection of grain as have not otherwise been provided for, and for the management of the public warehouses of the State, as such rules and regulations may be necessary to enforce the provisions of any law of the State in regard to the same; to keep proper records of all inspecting and weighing done, for which purpose he shall have power to employ the necessary office force and procure the necessary books, blanks, and other material needed in order to keep perfect and proper records. He is required to investigate all complaints of fraud or oppression in the grain trade, and correct the same so far as may be in his power.

Assistant inspectors.—The chief inspector recommends suitable persons to the Governor for assistant inspectors, or weighmasters, and other necessary employees, and the Governor is authorized to make the appointments.

Oaths and bonds.—All inspectors are required to take oaths of office and to furnish official bonds, with sureties to be approved as those of other appointed officers.

Grades.—The chief inspector is required, before the first day of September of each year, to establish grades for all kinds of grain, to be known as "Kansas grades," and he is authorized to notify the boards of trade in the State, so that they may send representatives to consult and counsel with him in establishing such grades. The grades so established must be published in three daily papers in the State each day for the period of one week.

Samples.—The chief inspector is required to furnish standard samples of the grades so established, when requested, to elevator or warehouse men, at the actual cost thereof.

Fees.—The chief inspector is required to adjust the fees for inspecting and weighing grain, from time to time, in such manner as to produce a revenue sufficient to meet the necessary expenses of the service, and no more; such fees to be a lien on the grain inspected and weighed.

Reports.—The chief inspector is required to make to the Auditor of State, on the first business day of each month, a full report of the work done in his department the preceding month.

Official misconduct.—Whenever the chief inspector or assistant inspectors are guilty of official misconduct or neglect of duty they are liable to fine and imprisonment and loss of office. Bribery of an inspector is made a felony, punishable by confinement in the penitentiary at hard labor for a term not exceeding seven years.

Assuming to act as inspector.—Inspecting grain without being authorized thereto is made a misdemeanor punishable by fine and imprisonment.

Appeals.—In case any owner, consignee, or shipper of grain, or any warehouse manager, shall be dissatisfied by the decision of any assistant inspector, an appeal is allowed to a standing committee of three, which the chief inspector is required to appoint at every point where State inspection is established. Such committee is to be composed of experienced grain men, and their decision is to be final.

License.—The proprietor, lessee, or manager of any public warehouse is required, before transacting any business, to procure from the regular chartered and acting board of trade in the nearest city of the first or second class, as the case may be, a license to transact business as a public warehouseman.

Bond.—The warehouseman is required to give a bond, with sureties approved by the board of trade mentioned in the last preceding paragraph, in the sum of not less than \$10,000 nor more than \$50,000, in the discretion of the board of trade issuing the license.

Penalties are imposed for transacting business without first securing a license and giving bond, as set forth in the last two preceding paragraphs.

Receiving grain.—Warehousemen are required to receive for storage all grain tendered in suitable condition, and storage in separate bins is provided for.

Inspection.—Grain is required to be inspected both on being received in and delivered out of a warehouse.

Charges.—Charges for inspection are to be paid by warehousemen and added to the charges for storage.

Delivery of grain.—On return of warehouse receipt properly indorsed, and tender of all proper charges, the property described in the receipt shall be immediately delivered to the holder of the receipt; on default, the warehouseman is required to pay 1 cent per bushel, and a like sum for each day the default continues.

Statements.—A warehouseman is required to furnish a statement in writing, under oath, concerning the condition and management of his warehouse, at such times as the board of trade issuing his license requires.

Statements by warehousemen.—Warehousemen are required, on or before Tuesday morning of each week, to make out and post up conspicuously in their respective business offices, statements of the amount of each kind and grade of grain in store at the close of business on the previous Saturday. Statements to the secretary of the board of trade issuing their licenses are also provided for.

Rates of storage.—During the first week of September of each year it is made the duty of warehousemen to give public notice of the rates of storage for the ensuing year, which rates are not to be increased.

Loss of or damage to grain in store.—Carefully drawn provisions of law relieve warehousemen from liability for loss of grain by fire or damage to grain while in their custody, provided reasonable care and vigilance have been exercised on their part.

Unlawful combinations.—Combinations between warehousemen and railroad or other corporations or with individuals, by which property is to be delivered for storage or for any purpose contrary to the directions of the owner or his agent or consignee, are declared unlawful.

MINNESOTA.

Railroad and Warehouse Commission.—The earlier mode of appointment by the Governor and confirmation by the Senate has been changed by the act of March 6, 1899, which provides for the election of the commissioners at the general election in November, 1900, and at each general election thereafter as the terms of office expire. Legally called political conventions to nominate State officers are permitted to put in nomination candidates for the office of commissioner, as for other State offices.

The commissioners are required to give bonds and take an oath of office in a form prescribed. The commission is to have an official seal, and either member may administer oaths and affirmations.

Grain elevators.—It is made unlawful for any railroad company or person, association, or corporation engaged in the business of keeping an elevator or warehouse, situated upon the line of any railroad in the State, for receiving or handling grain for other persons, to charge any greater sum than 2 cents per bushel for receiving, elevating, handling, and delivering such grain.

If any railroad company refuse to render such service at the rates prescribed it shall, upon demand, allow any person, association, or corporation to erect and maintain adjoining the railroad track or side track warehouses to receive, store, and ship grain.

Whenever any grain is delivered for storage at a warehouse it is to be deemed a bailment and not a sale.

Receipts are to be issued to persons storing grain, which shall clearly state the amount, kind, and grade of the grain stored, and the terms of storage. Such receipts are made prima facie evidence of their contents. The issuing of a receipt false in any respect is made a misdemeanor punishable by fine or imprisonment or both, at the discretion of the court.

Refusal to deliver grain.—It is made a larceny in the warehouseman to willfully neglect or refuse to deliver to the bailor or his assigns, on demand, accompanied by a tender of charges for storage and money advanced, and offer to surrender warehouse receipt, the grain represented by such receipt. Receipts are made negotiable, unless the words "not negotiable" are plainly written or stamped on their face.

Tampering with grain in store.—It is made a felony for a warehouseman to sell or otherwise dispose of grain in store without the consent of the owner and return of the receipt given for the same; or to mix grain of different grades, or to tamper with any grain of other persons, while in his custody, with a view to secure profit to himself, or to anyone, without the consent of the owner.

Licenses and bonds.—Licenses are required to be taken out and bonds to be given by warehousemen before transacting any business as such.

Canceling receipts.—Upon delivery of grain from store, the warehouse receipt is to be plainly marked "canceled."

Statements by warehousemen.—Statements concerning the condition and management of business are to be made under oath and in writing by warehousemen whenever required by the Board of Railroad and Warehouse Commissioners.

Daily and weekly statements.—Every public warehouseman located at Minneapolis, St. Paul, or Duluth is required to post up conspicuously in his business office, on or before each Tuesday morning, a statement of the amount of each kind and grade of grain in store in his warehouse at the close of business on the previous Saturday; and a like statement under oath must be delivered to the warehouse registrar. Additional daily statements to the registrar are also provided for, showing what receipts have been canceled and issued.

Registrar.—The secretary of the Railroad and Warehouse Commission likewise acts as registrar.

Publication of rates.—Public warehousemen are required during the first week of September of each year to publish, in one or more newspapers, a schedule of rates for the storage of grain for the ensuing year.

Weighmasters.—The board of commissioners is required to appoint, in all cities where there is State inspection of grain, a State weighmaster and necessary assistants, who are to give bonds in the sum of \$5,000 each. The commissioners are empowered to adopt rules and regulations for weighing of grain and other property. All scales in use are subject to examination and test by inspectors, weighmasters, and sealers of weights and measures, and refusal to allow weighmasters access to such scales renders the warehouse liable to a fine.

Chief inspector of grain and deputies.—It is the duty of the board of commissioners to appoint a suitable person Chief Inspector of Grain: such chief inspector to take an official oath and to give bond in \$10,000 with surety to be approved by the commissioners. The chief inspector appoints his deputies, subject to the approval of the commissioners. The deputies are required to give bonds of \$5,000 each and take an oath of office.

Rules governing inspectors.—Inspectors in the performance of their duties are subject to the rules and regulations prescribed by the commissioners, who are authorized to fix their rate of charges, manner of collection, and compensation.

They are not to be interested in the handling, storing, shipping, purchasing, or selling of grain, or in the employ of any person or corporation so interested.

They are subject to removal by the commissioners upon complaint in writing sustained by satisfactory proof.

Assuming to act as inspector of grain without lawful authority subjects the offender to a fine of not less than \$50 nor more than \$100 for each attempt, recoverable in an action of debt before a justice of the peace.

They are punishable for neglect of duty, or for accepting bribes; the person so improperly influencing an inspector is also declared guilty of a misdemeanor and made liable to fine or imprisonment.

Board of appeals.—An act approved April 13, 1899, established a board of appeals for the inspection of grain, and prescribed its duties.

Under this act the Governor appoints 6 suitable persons, 3 of whom are to constitute a board of appeals for the inspection of grain at Minneapolis, and the others at Duluth. If practicable, each board is to consist of 1 practical or representative producer of grain, 1 practical or representative grain commission merchant, and 1 practical or representative grain merchant, exporter, or miller. Not more than 2 of its members are to belong to the same political party. Their term of office is fixed at 2 years.

Prescribing standards for grades.—The entire 6 members are to meet together, or a majority of the 6, not later than September 15 of each year, and prescribe standards for grades, which are not to be changed during the crop year, or from one annual meeting to the next, except with the approval of at least 5 members of the joint boards.

Disqualification for membership.—A member of the board of trade, or other grain exchange, or grain firm, or person in any way engaged in or interested in the business of buying or selling grain, is ineligible as a member of the board of appeals.

Selling by sample.—Selling by sample, regardless of grade, is not forbidden by law.

General duties of the board of commissioners.—It is made the duty of the Railroad and Warehouse Commission to assume and exercise a constant supervision over the grain interests of the State, to supervise the handling, inspection, weighing, and storage of grain, and to establish rules and regulations necessary to enforce the laws relating to these subjects, and to give public notice of the same. In the discharge of their duties the commissioners are authorized to call to their

assistance the Attorney-General, who is ex officio their attorney and legal adviser, and, when necessary, the attorney of the State in their respective counties.

Country elevators or country warehouses.—By an act approved April 16, 1895, all elevators and warehouses in which grain is received, shipped, or handled, and which are situated on the right of way of any railroad, depot grounds, or any lands acquired or reserved by any railroad company in the State of Minnesota, to be used in connection with its line of railway at any station or siding in the State other than terminal points, were declared to be public elevators and under the supervision and subjected to the inspection of the Railroad and Warehouse Commission, and for the purposes of the act to be known and designated as "public country elevators or country warehouses."

The provisions of the act relate to the procuring of licenses, penalties for doing business without a license, revoking of licenses, keeping account of business transacted, delivery of warehouse receipts, delivery of grain on demand, unjust discrimination, unlawful poolings, penalties for violations of the act, etc.

MISSOURI.

Railroad Commissioners.—Three Railroad Commissioners are elected by the qualified voters of the State. No person owning any bonds, stock, or other property in any railroad company, or in the employ of any railroad or transportation company, or in any way or manner personally interested therein is eligible to hold the office. By section 7623 of the Revised Statutes of the State (1899) it is recited that the present Board of Railroad Commissioners shall be known as the Board of Railroad and Warehouse Commissioners, and charged with the supervision of the inspection of grain.

Public warehouses defined.—All buildings, elevators, or warehouses wherever State grain inspection may be established, and having a capacity of not less than 50,000 bushels, for the purpose of storing grain of different owners for a compensation, are declared public warehouses.

Chief Inspector of Grain.—The board of commissioners appoints a Chief Inspector of Grain, whose duty is a general supervision of the inspection of grain required under the laws of the State.

Licenses and bonds.—Licenses are required to be taken out by warehousemen before transacting any business as such. Bonds must be given, with sufficient surety, varying in amount according to the capacity of the warehouse. Fines are prescribed for violation of these statutes.

Receiving grain for storage.—Warehousemen are required to receive for storage any grain tendered, without discrimination between persons, and to make their charges uniform. Grain is to be inspected and stored with grain of a similar grade. Special bins are provided for. Combinations to divert grain contrary to the direction of the owner are prohibited.

Warehouse receipts.—Upon application of the owner, charges being paid, the warehouseman is required to issue a warehouse receipt, stating the quantity and inspected grade of the grain, that it has been stored with grain of the same grade, and is deliverable upon return of receipt and payment of charges. Receipts are to be consecutively numbered and not duplicated during the same year. No warehouse receipt is to be issued except upon actual delivery of the grain. When grain is delivered by the warehouseman, the receipt is to be plainly marked "Canceled." Receipts are made transferable by indorsement, such indorsement constituting a valid transfer of the property represented.

The issuance of fraudulent receipts is declared to be a felony, punishable, in addition to other penalties prescribed by the article, by imprisonment in the penitentiary for not less than 1 nor more than 10 years.

A receipt being presented, charges paid, and demand made, the warehouseman must immediately deliver the property represented by the receipt.

Schedule of rates.—A warehouseman is required to publish in one or more newspapers, during the first week in January of each year, his schedule of rates for storage. The maximum charge for the first 10 days or part thereof is fixed at 2 cents per bushel; for each 10 days or parts of days thereafter, at one-half of 1 cent per bushel.

Statements by warehousemen.—Before Tuesday morning of each week a statement is to be made out and conspicuously posted by the warehouseman in his warehouse, and a copy under oath delivered to the board of commissioners, of the amount of each kind and grade of grain in store on the previous Saturday. Daily reports are also required to be made by the warehouseman to such board of commissioners of the character particularly described and set forth in section 7645 of the Revised Statutes of 1899.

Loss or damage by fire.—A warehouseman is not to be responsible for loss or damage by fire to property in his custody if he have used reasonable care and vigilance to protect it.

Examination of property in store.—Owners and inspectors are to have access to stored property at all times, during ordinary business hours, to examine the same.

Scales.—All scales in use are made subject to examination and test by authorized inspectors, and the use of incorrect scales is prohibited.

Violations of Article III.—Violations of Article III of the constitution are declared misdemeanors, punishable by a fine of not less than \$1,000 nor more than \$5,000, one-fourth to be awarded to the informer.

Chief inspector and assistant inspectors.—The chief inspector has a general supervision of the inspection of grain, under the immediate direction of the board of commissioners. He nominates to the commissioners the assistant inspectors, who have authority to make such appointments. Inspectors take official oaths and give official bonds, with sureties to be approved by commissioners—the chief inspector in the penal sum of \$50,000, and each inspector in the sum of \$10,000. The commissioners fix their compensation.

Rules for inspection.—The board of commissioners is empowered to make all proper rules and regulations for the inspection of grain, including the fixing of charges and the mode of collection. Such charges are to be regulated so as to produce a revenue sufficient to meet the expenses of the service of inspection, and no more.

Punishment for violations of duty.—Neglect of duty in the discharge of the office of inspector, and influencing an inspector thereto, are declared misdemeanors, punishable by fine or imprisonment or both, in the discretion of the court. Assuming to act as inspector without authority is likewise punishable as misdemeanors.

Removal of inspectors.—The board of commissioners may remove inspectors upon complaints in writing, sustained by proof, for violation of rules, incompetency, or official misconduct, and appoint their successors.

Arbitration committees.—The board of commissioners is required to appoint committees for adjustment of differences between inspectors and warehousemen, or owners and representatives of grain, each committee to consist of three experts in grain and to be appointed in each city or town where public warehouses are situated, said committees to be known as "arbitration committees of the Railroad and Warehouse Commissioners." To this committee all matters involving doubt on the part of inspectors, or dissatisfaction on the part of any owner, consignee, or shipper of grain, or any warehouseman, with inspection, an appeal may be taken; the decision of the committee, after careful inquiry, to be final. The board of commissioners are required to make equitable and legal rules governing such arbitration committees.

Grades for the inspection of grain.—The board of commissioners is required to establish a proper number and standard for the inspection of grain, "with due regard to the prevailing usage of the markets of this State, the interests of both producers and dealers, and as near as may be to conform with standards of grade adopted by leading markets of the United States. In addition to which such grades as may have been or may hereafter be established or recognized in other States and Territories shall prevail and be lawful in this State, when used and applied in dealings had in and with grain produced in such other State and Territory, so that grain produced in other States and Territories may be sold and handled in this State under the same grades prevailing at the place of the production of said grain."

No modifications or changes of the grades of grain are to be made without public notice for at least 20 days prior thereto by publication in 3 daily newspapers, one of which shall be printed in German.

Further powers and duties of commissioners.—The board of commissioners is required on or before January 1 of each year, to make a report to the Governor, containing such facts as will disclose the actual working of the warehouse system, together with such suggestions as may seem pertinent. They are to visit and examine warehouses and cause infractions of law to be prosecuted. The property and all books of account of warehousemen are made subject to the examination and inspection of the commissioners.

The power to issue subpoenas for witnesses is conferred upon the commissioners, and the duty of issuing process to compel their attendance is imposed upon the courts. Willful neglect or refusal to obey subpoenas issued by the commissioners is made punishable by fine or imprisonment, or both, in the discretion of the court.

Prosecutions.—All prosecutions are to be in the name of the State, and are to be conducted by the Attorney-General and by prosecuting attorneys in their respective

counties. Informers' interests in fines are preserved. Common-law remedies and the right to prosecute for private damages for injuries are also preserved.

Weighmasters.—The chief inspector nominates to the commissioners suitable persons to act as weighmasters, who are required to give bond in the sum of \$5,000 and receive such compensation as the commissioners may determine. The commissioners likewise fix the fees for weighing grain, which are to be paid by the warehouseman and added to the charge for storage.

Scales.—Warehousemen are to provide and maintain suitable scales for the weighing of grain.

Punishment for cheating, etc.—Cheating, weighing falsely, and violating certain provisions of the statute are declared misdemeanors, punishable by a fine of not less than \$500 nor more than \$1,000, or imprisonment in the county jail, or city jail of St. Louis, not less than 6 nor more than 12 months, or both, in the discretion of the court.

Shipping grain.—All consignments of grain to any elevator or public warehouse are held to be temporary, and subject to change by the consignee or consignor at any time previous to the actual delivery of the property.

No discrimination is allowed to a railroad company in shipping grain in favor of one shipper as against another.

Scales for weighing by carloads.—At all stations or places from which the shipment of grain by a railroad shall have amounted during the preceding year to 50,000 bushels or more, such corporation shall erect and keep in good condition for use, and use in weighing grain to be shipped over its road, true and correct scales. Such corporation shall carefully and correctly weigh each car upon which grain shall be shipped, both before and after the same is loaded, and ascertain and receipt for the true amount of grain so shipped.

Grain to be received at junctions.—Railroads shall receive and deliver all grain and other freight consigned to its care for transportation at the crossings and junctions of all other railroads, canals, and navigable rivers, and at all cities and towns along the line of their roads having a population of 200 inhabitants or more, construct and maintain switches and freight houses for the receipt and delivery of grain and other freight, and shall stop at least one train daily thereat to receive and unload freight. A penalty is attached for failure to conform to the provisions of this section.

NEBRASKA.

Board of transportation.—The Attorney-General, Secretary of State, Auditor of Public Accounts, State Treasurer, and Commissioner of Public Lands and Buildings shall constitute a Board of Transportation, which board shall have power by a four-fifths vote to appoint three (3) secretaries to assist in the performance of the duties of said board, with a salary of \$2,000 per annum; not more than two of the secretaries are to be appointed from the same political party.

Secretary required to take an oath of office and to enter into bond, to be approved by the governor, in the sum of \$10,000. No person in the employ of any railroad corporation or holding stock in a railroad corporation to be employed as secretary.

Principal office of the board to be in the city of Lincoln.

Elevators and public warehouses.—All elevators or storehouses where grain or other property is stored for a compensation, whether the property is stored and kept separate or not, are public warehouses.

Statements by warehouseman.—The owner, lessee, or manager of a public warehouse is required to make weekly statements, under oath, and to post the same conspicuously in the office of such warehouse of the amount of each and every kind of grain and other property stored therein; also of the amount of warehouse receipts issued and still outstanding. In cities of the first class the daily changes in quantity and grade of grain are to be noted on such statement.

Mixing of grain.—Different grades of grain shipped in separate lots are not to be mixed with inferior lots without consent of owner.

Privilege of holders of receipts.—Owners and holders of receipts are always at liberty to examine property stored and books and records of warehousemen.

Classification of warehouses.—All public warehouses are divided into three classes, to be designated as A, B, and C, and receive, ship, store and handle the property of all alike, without discrimination. Class A embraces all warehouses, elevators, and granaries in which grain is stored in bulk, or in such manner as to destroy identity of different lots, and located in cities of the first class. Class B embraces all other warehouses, elevators, or granaries where grain is stored in bulk, and grain of different owners mixed together. Class C embraces all other warehouses where property of any kind is stored for a consideration.

License.—Warehousemen are required to procure from the board of transportation a license, which is revocable by such board, upon complaint in writing by any person, and satisfactory proof of violation of law.

Bond.—The licensee is required to give a bond in the penal sum of \$10,000 with security to be approved by said board.

Doing business without a license is punishable by a fine of not less than \$100, nor more than \$500, for each and every day such business is carried on.

Duty of warehousemen.—It is the duty of warehousemen of Classes A and B to receive for storage or shipment any grain tendered; and when received at Class A it must be duly inspected and graded and stored with grain of a similar grade; different grades are not to be mixed together.

Separate bins are provided for.

Warehouse receipts.—A warehouse receipt is to be issued on application of the owner to warehousemen of Class A, the charges being tendered. All receipts are to be consecutively numbered, and not duplicated during the same year. Where grain is delivered receipt is to be plainly marked on its face, "canceled." No such receipt is to be issued except upon actual delivery of the grain, but partial receipts are provided for. The receipt must not limit in any wise the liability of the warehousemen, as imposed by law. Upon return of the receipt and tender of charges the grain is to be promptly delivered to the holder; if warehousemen neglect to so deliver, they become liable in damages for 10 per cent of the value of the grain and 1 per cent in addition for each day's delay.

Daily and weekly statements.—Warehousemen of Class A are required to make out and post conspicuously weekly statements of the amount and kind of grain in store; and also deliver a like statement to the warehouse registrar, and furnish daily to the latter statements of their business the preceding day.

Chief inspector and assistant.—The Governor is required, by and with the advice and consent of the Senate, to appoint a suitable person, not a member of the board of trade, nor interested in any warehouse, a chief inspector of grain (to hold his office for 2 years), in every city or county in which a Class A or B warehouse is located. Provided, no such inspector for cities or counties in which class B warehouses are located shall be appointed, except the application of two or more warehouses of Class B therefor shall be officially indorsed by a legally organized board of trade in such cities or counties. Such chief inspector is to have general supervision of the inspection of grain, under the advice and immediate direction of the board of transportation.

The chief inspector is authorized to nominate to the board of transportation suitable persons for appointment as assistant inspectors.

The bond of the chief inspector is \$50,000, when appointed for any city in which is located a warehouse of Class A, and \$10,500 for any other city or county. Assistant inspectors are required to give bond in \$5,000 each. Sureties are to be furnished on the bonds, to the approval of the board of transportation, and the bonds filed with the board.

All inspectors are to be governed by such rules and regulations as may be prescribed by such board.

The board is empowered to make all rules and regulations for inspection of grain, and to fix the charges therefor, the manner of collection, and the compensation of inspectors and employees.

Warehouse registrars and assistants.—The board of transportation is authorized likewise to appoint a warehouse registrar and necessary assistants, to have general supervision and control over such appointments, prescribe their respective duties, fix and regulate their compensation, remove from office upon written complaint of any person supported by a satisfactory proof of the charge made, and may reduce the number of such appointments when found necessary.

Expenses of inspection service.—All necessary expenses incident to inspection of grain and to the office of registrar, including rent of suitable office, are deemed expenses of the inspection service, payable from the funds collected for the same.

Schedule of rates.—During the first week in January of each year every warehouseman of Class A is required to publish a table or schedule of rates for storage in his warehouse for the ensuing year, which shall not be increased during such year.

Weighing of grain.—All grain shall be weighed on receipt and delivery from Classes A and B, and annually all grain stored in bulk shall be weighed on the date prescribed by the board of transportation and reported to the registrar according to its kind and grade.

Loss or damage by fire.—A public warehouseman, if he exercises due care, is not to be held responsible for loss or damage by fire to property in his custody, nor liable for loss to grain by heating if he has exercised proper care in handling and storing the same. His duties are prescribed in respect to grain in his custody out of condition or becoming so.

Tampering with grain in store.—It is declared unlawful for a public warehouseman to mix grain of different grades, or to select different qualities of the same grade for the purpose of storing or delivering the same; or to deliver one grade for another, or in any way to tamper with grain in his possession or under his control to secure profit to himself.

Examination of grain.—All persons interested in property in store are authorized to examine the same, and are entitled to proper facilities for that purpose.

Scales used for weighing property.—All scales in public warehouses used for weighing property are subject to test by inspectors, or sealer of weights and measures, when required by persons interested in property weighed or to be weighed.

Inspection of grain.—Warehousemen of Classes A and B are prohibited from receiving and mixing grain until after inspection.

Assuming to act as inspectors without being legally appointed and sworn is punished by a fine of not less than \$100 nor more than \$200 for each attempt.

Any inspector of grain guilty of neglect of duty, or who shall accept a consideration for neglect of duty, and any person who shall improperly influence an inspector are both declared guilty of a misdemeanor and subjected to a fine of not less than \$100 nor more than \$1,000, or to be imprisoned in the county jail not less than 8 nor more than 12 months, or both.

If an owner be dissatisfied with inspection of grain or desire to receive his property, he may withhold the same from going into warehouse; the grain, if in railroad cars, to be removed within 24 hours, by the owner or consignee.

Unlawful combinations.—It is unlawful for warehousemen to enter into combinations whereby the property of any person is to be delivered to any public warehouse for storage or other purpose contrary to the direction of the owner, his agent or consignee.

Suits.—If any warehouseman shall be found guilty of any violation of law regulating his duties, the party injured may bring suit, upon his bond, in the name of the State, to his own use.

In all criminal prosecutions against a warehouseman it is made the duty of the prosecuting attorney of the appropriate county to prosecute the same.

Warehouse receipts.—Warehouse receipts for property in store are transferable by indorsement, and such indorsement is a valid transfer of the property represented.

Receipts for property in Class C shall state the brand or distinguishing marks on the property.

Issuing a warehouse receipt for property not actually in store, or a receipt in any respect fraudulent, is declared a crime, punishable, in addition to other penalties, by imprisonment in the penitentiary for not less than one nor more than ten years.

Common-law remedy.—Nothing in the law shall deprive any person of any common-law remedy now existing.

Act of 1891, chapter 55.—A printed copy of this act must be kept posted in the business office of the managers and in each warehouse conspicuously.

It is made the duty of the board of transportation to see that the provisions of the law are enforced.

Additional duties of the board of transportation (laws of 1891).—In addition to their present duties, the board of transportation is required to examine into conditions and management and all other matters concerning the business of public warehouses in the State.

Prosecutions for violations of law.—Whenever it shall come to their knowledge that the law has been violated they shall cause the offender to be prosecuted.

Statements from warehousemen.—The board of transportation may require public warehousemen to furnish in writing, under oath, a statement concerning their business as such warehousemen.

Cancellation of licenses.—The board of transportation is empowered to cancel licenses of warehousemen if, upon hearing, they are found to have violated the law.

Examination of property, etc.—The board of transportation is empowered to examine the property, books, records, accounts, papers, and proceedings of public warehousemen; to examine persons under oath touching conditions and management of such business; and to punish for contempt.

Disregard of process issued by board.—Willful neglect to obey process of subpoena issued by the board is declared a misdemeanor punishable by a fine of not less than \$25 nor more than \$500, or by imprisonment for not more than 30 days, or both.

Failure to make report to and hindering of board.—Every railroad corporation and every owner, lessee, manager, or employee of any public warehouse who shall fail to make and furnish any report required, or shall willfully hinder said board in the discharge of its duties, shall forfeit and pay not less than \$100 nor more than \$500 for each offense, recoverable in an action of debt.

Duty of attorney-general and county attorneys.—The attorney-general and the

county attorneys are to prosecute suits on request of said boards, which suits are not to be dismissed without the consent of such board; all moneys arising therefrom to be paid into the State treasury. Rights of individuals to prosecute for private damages are preserved.

Grades for inspection of grain.—The board is to establish a proper number and standard of grades for the inspection of grain; but not to change the same without public notice.

Committee of appeals.—The board of transportation is required to appoint three discreet and competent persons to act as a committee of appeals in every city where a Class A warehouse is located, to hold their office for one year. A like committee is to be appointed each year thereafter; the board is empowered to make all necessary rules governing appeals.

Appeals.—In case of doubt on the part of chief inspectors, or any assistant, as to the proper inspection of a lot of grain, or dissatisfaction of the owner with the decision of any inspector, an appeal may be made to said committee.

Official oaths and boards of committee of appeals.—The committee on appeals is required to take official oaths, and execute their respective bonds in the penal sum of \$5,000 to the approval of board of transportation; the board is also to fix salaries.

Who are ineligible.—No person who is a purchaser of grain or a receiver thereof, or of other articles to be passed upon by the committee, is eligible for appointment.

Delivery of grain from Class A.—No grain is to be delivered from Class A except on return of receipts issued, marked plainly by warehouse registrar, "Registered for collection," and the date thereof.

Rates of charges for inspection of grain.—Said board is empowered to fix the rate of charges for inspection of grain, both into and out of the public warehouse, which charges shall be a lien on the grain inspected; and all moneys collected for inspection fund are to be deposited with the State treasurer.

State weighmaster and assistants.—The board is empowered to appoint in all cities where there is State inspection of grain a State weighmaster and necessary assistants.

Powers of weighmaster.—Weighmasters and assistants are to have exclusive control of weighing of grain and other property subject to inspection; likewise of the inspection of scales. Their action and certificate are to be conclusive upon all parties in interest.

Fees for weighing.—Said board is empowered to fix fees for weighing, to be paid equally by parties interested.

Weighmasters: their bonds and compensations.—Weighmasters and assistants are not to be members of any board of trade; to give bonds in the sum of \$5,000 each, and receive such compensation as the Board of Railroad and Warehouse Commissioners may determine.

Rules and regulations for the weighing of grain.—Discretionary power is conferred upon the board of transportation in adopting rules and regulations for the weighing of grain or other property.

Penalties for interfering with weighmasters.—In case any persons, warehouseman or railroad corporation, or any of their agents or employees, shall refuse or prevent weighmasters access to their scales, in the performance of their duties, they shall forfeit the sum of \$100 for each offense, recoverable in the name of the people of the State in an action of debt before any justice of the peace; such penalty or forfeiture to be paid to the county in which the suit is brought.

The laws of the State of Nebraska likewise deal with the matter of unclaimed property and the rights and duties of bailees in respect thereto with considerable particularity.

NEW YORK.

Elevators.—The maximum charge for elevating, receiving, weighing, and discharging grain by means of floating and stationary elevators and warehouses in the State shall not exceed the following rates, namely: For elevating, receiving, weighing, and discharging grain, five-eighths of 1 cent a bushel. In the process of handling grain by means of floating and stationary elevators, the lake vessels or propellers, the ocean vessels or steamships, and canal boats, shall only be required to pay the actual cost of trimming or shoveling to the leg of the elevator when unloading, and trimming cargo when loading.

Any person violating this provision shall, upon conviction thereof, be adjudged guilty of a misdemeanor, and be punished by a fine of not less than \$250 and costs thereof.

The act is not applicable to any village, town, city, or city having less than 180,000 population. (Chapter 581, Laws of 1888.)

[The foregoing act is cited because it received a construction by the court of appeals of New York in *People v. Budd* (117 N. Y., p. 1) and by the Supreme Court of the United States in *Budd v. New York* (148 U. S., p. 517). Both courts sustained the legality of the act.]

NORTH DAKOTA.

Commissioners of railroads.—The constitution of the State of North Dakota (sec. 82) provides that there shall be chosen by the qualified electors of the State, at the times and places of choosing members of the legislative assembly, three commissioners of railroads, to hold their office at the seat of government for the term of two years, and until their successors are elected and duly qualified. (Constitution adopted October 1, 1889.)

Powers and duties.—The duties imposed by article 25 of the revised political code of 1895, title, "Public warehouses," and the powers conferred therein, were devolved upon the commissioners of railroads. It was made their duty to supervise the handling and storage of grain and seed; to establish all necessary rules and regulations for the weighing of grain, and for the management of the public warehouses of the State; to investigate all complaints of fraud or oppression in the grain trade of the State, and correct the same so far as in their power: such rules and regulations to be published in such manner as to give the greatest publicity thereto.

Public warehouses defined.—An act approved February 21, 1899, defined public warehouses as follows:

All buildings, elevators, warehouses, or grist mills, except grist mills doing only a custom or exchange business in this State, erected and operated, or which may hereafter be erected and operated by any person, association, copartnership, corporation, or trust, for the purpose of buying, selling, storing, grinding, shipping, or handling grain for profit, are declared public warehouses, and the person, association, copartnership, or corporation owning or operating such buildings, elevators, warehouses, or grist mills, except grist mills doing only a custom or exchange business, which are now or may hereafter be located or doing business within this State, whether such owners or operators reside within this State or not, are public warehousemen within the meaning of this article, and none of the provisions of this article shall be construed so as to permit discrimination with reference to the buying, grinding, receiving, and handling grain of standard grades, or in regard to the persons offering such grain for sale, storage, and handling at such public warehouses, or to be ground into flour, while the same are in operation.

Licenses.—An annual State license must be procured through the commissioners of railroads and kept conspicuously posted in the warehouse, under a penalty of not less than \$25 for each day business is carried on without such license.

Bonds of warehousemen.—Bonds are required with sureties to the approval of the commissioners in the penal sum of not less than \$5,000, nor more than \$75,000, in the discretion of said commissioners, for the faithful performance of duty and a compliance with all the laws of the State.

Receipts.—Warehousemen, when requested by persons delivering grain, are required to give a warehouse receipt therefor, bearing date of delivery and stating on its face the quality and grade fixed upon the same. Receipts are to be consecutively numbered, and no two to bear the same number and series during the same year.

No receipt is to be issued except upon actual delivery of the grain into the warehouse, nor contain any language limiting or modifying the liability of the warehouseman as imposed by laws of the State.

Such receipts are required likewise to provide that, at the option of the original holder, the kind, quality, and quantity of grain for which they are issued shall be delivered back, upon payment of the reasonable charges fixed at the time of the receipt of the grain. (The identical grain is not required to be delivered, but an equal amount of the same grade, excepting in case of wheat placed in special bin.) Such receipts constitute the delivery of the grain—a bailment and not a sale.

Failure to deliver on demand.—Every warehouseman who, after demand and tender of charges, willfully fails to deliver the full amount of grain of the grade or the market value thereof which the demander is entitled to receive is declared guilty of larceny.

Attorney-general.—The Attorney-General of the State is made ex officio attorney for the Railroad Commissioners.

State's attorneys.—In all criminal prosecutions it is made the duty of the respective State's attorneys to prosecute them to a final issue.

Rates of charges.—For receiving, elevating, insuring, delivering, and twenty days' storage the warehouseman is entitled to charge 2 cents per bushel after the first twenty days, one-half cent per bushel for each fifteen days or fraction thereof, and not exceeding 5 cents for six months.

Penalty for violation of article 25.—Any person knowingly cheating or falsely weighing any wheat or other agricultural products, or who shall violate any of the provisions of article 25, is liable to a fine of not less than \$200 nor more than \$1,000 and to imprisonment in the penitentiary not exceeding one year, in the discretion of the court.

Taxation of grain in store.—All grain in any elevator, warehouse, or grain house on the 1st day of April in each year is assessed and taxed in the name of the person, firm, company, or corporation owning or operating the same, and persons in charge are required to furnish statements, under oath, of all grain therein on said day. False statements are declared to be perjury and punished as such. (Act approved March 8, 1899.)

Erection of grain warehouses on railroad right of way.—By sections 1796, 1797, 1798, and 1799, of the Political Code and the incorporation therein of the sections of the code of civil procedure relating to the exercise of the right of eminent domain, a mode of procedure is established whereby any two or more persons associated together by articles of agreement in writing may secure the privilege of constructing, maintaining, and operating a warehouse, or elevator, for the purchase, storing, and shipping of wheat or other grain, at any of the regular way stations of any railroad company within the State, upon the right of way of such railroad company.

OREGON.

Warehouse receipts.—It is made the duty of warehousemen to issue to the owners of grain, flour, pork, beef, wool, produce or commodities stored, a receipt therefor showing the date of its issuance, from whom received, the number of sacks (if sacked), the number of bushels or pounds, the condition or quality, and the terms and conditions of storage; but such receipt is not to be issued unless the property represented is actually in store at the time.

Fraudulent and duplicate receipts.—No receipt is to be issued in any respect fraudulent in its character, either as to its date or the quantity, quality, or grade of the property.

The issuing of a second receipt while any former receipt for the same property is outstanding is forbidden, unless the word "duplicate" is written across the face thereof.

Commodities of different quality.—A warehouseman is forbidden to mix any grain, flour, pork, beef, wool, or other produce or commodity of different grades together, or different qualities of the same grade, or to deliver one grade for another, or in any way to tamper with the same while in his possession, to secure profit to himself or any other person.

Shipping or removing property.—The property described in the last preceding paragraph is not to be sold, encumbered, shipped, transferred, or in any manner removed beyond the custody and control of the warehouseman without the written consent of the holder of the receipt issued for the same.

Negotiability of receipts.—Such receipts as are described above are declared negotiable and transferable by indorsement; and such indorsement is to be deemed a valid transfer of the commodity represented by the receipt.

Delivery of property.—On the presentation of a receipt, and payment of all charges due thereon, the owner shall be entitled to the immediate possession of the commodity named in the receipt, and it is made the duty of the warehouseman to deliver the same to the owner of such receipt.

Penalties.—The violation of any of the preceding provisions subjects the offender to indictment, and, upon conviction, to a fine in any sum not exceeding \$5,000, or imprisonment in the penitentiary not exceeding five years, or both.

Rights of individuals.—Individuals suffering damage, by reason of the violations of law aforesaid, may bring suit before any court of competent jurisdiction, and recover such damages, whether such offender has been convicted or not. (Act of February 23, 1885.)

SOUTH DAKOTA.

Public elevators and warehouses.—All elevators and warehouses in the State whereat grain is purchased, received, or handled are declared to be public warehouses.

Board of Railroad Commissioners.—This board is composed of three persons

chosen at the general election in November by the qualified electors of the State. Their term of office is six years and until their successors are elected and qualified. The Governor may appoint in case of vacancy occurring in the office, until the next general election. No person is qualified to hold the office of Railroad Commissioner who is the owner of stocks or bonds in any railroad company, or who is in the employment of or in any manner pecuniarily interested in any railroad, or in any railroad corporation, public warehouse, or elevator. They have the power to elect a secretary and prescribe his duties. Their salary is \$1,500 each per annum.

They are each required to take and subscribe an official oath and to give bond in the penal sum of \$5,000, with sufficient sureties to be approved by the Secretary of State.

Certain duties imposed.—It is made the duty of the Railroad Commissioners to supervise the handling, inspection, weighing, grading, and storage of grain and seeds; to establish all necessary rules and regulations for the weighing and inspection of grain and management of the public warehouses, so far as may be necessary to enforce the laws of the State.

Complaints of fraud.—All complaints of fraud or oppression in the grain trade of the State are to be investigated by the Commissioners and corrected so far as may be in their power.

Printing and publishing of rules.—All rules and regulations established by the Commissioners, and the abrogation thereof, shall be printed and published in such manner as to give the greatest publicity thereto.

Licenses.—It is unlawful to conduct the business of a warehouseman without a license from the Railroad Commissioners.

The license must set forth the location and name and capacity of the elevator and warehouse, and the individual name of each person interested as owner or principal in the management of the same; if by a corporation, the name of the president, secretary, and treasurer.

Certain combinations forbidden.—It is likewise unlawful for any warehouseman, company, or corporation engaged in purchase or storage of grain, subject to the provisions of this act, to enter into any contract, agreement, or combination with any other warehouse, company, or corporation for pooling in the purchase and storage of grain by different and competing warehousemen; companies or corporations are to divide between them the aggregate or net proceeds of margins or profits resulting from their said business as warehousemen, or any portion thereof, and in any case of such contract, agreement, or combination for such pooling of their said business as warehousemen, each day of this combination shall be a separate offense.

Bonds of warehousemen.—A bond is required in the penal sum of not less than \$2,000, nor more than \$50,000, for each elevator operated, proportioned to the capacity of the elevator or warehouse, with sufficient sureties, and filed with the commissioners.

Conducting business without a license.—Transacting business of a public warehouseman without a license is declared a misdemeanor, punishable by a fine of not less than \$100 for each and every day such business has been carried on.

For good cause shown, the Railroad Commissioners may revoke a license, a right of appeal being allowed to the appropriate circuit court upon the filing of a bond by the warehouseman in the sum of \$300.

Warehouse receipts.—Owners of licensed and bonded warehouses, when requested by any person delivering grain, are required to give a receipt bearing date corresponding to the delivery, and stating upon its face the quality and grade thereof; also the amount deducted for dirt or cleaning.

Requisites of receipts.—Receipts are to be consecutively numbered and numbers are not to be duplicated during the same year. No receipt is to be issued except upon actual delivery of the grain, nor to contain any language limiting or modifying the liability of the warehouseman as imposed by law.

Upon return of warehouse receipts, properly indorsed and tender of charges, grain mentioned in receipt, or an equal quality of the same grade, is to be promptly delivered; if the grain has not been cleaned, the amount originally deducted for that purpose is to be added.

Grain shipped to terminal point.—When such grain is to be shipped to some terminal point where such elevator company or warehouseman is doing business, both weight and grade are to be guaranteed.

Statements by warehousemen.—The owner and manager of a licensed elevator and warehouse must furnish in writing and under oath, whenever required by the Commissioners, a statement of the condition and management of his business as such warehouseman, showing the total number of bushels of each kind and grade

of grain purchased and in store; the number delivered out, and the number remaining in store at date of report.

Inspection of warehouses.—The Commissioners are required to cause every warehouse, and the business thereof, and the mode of conducting the same, to be inspected at such time as they may order by one or more of the members of the Commission, and to report in writing the result of the examination. The property, books, etc., kept at the warehouse and relating to its condition, operation, or management are made subject to inspection of such Commissioners, who are clothed with the like power to subpoena and examine witnesses as said Commissioners possess in regard to railroad companies by existing law.

Grades to be established.—The Railroad Commissioners are required, before September 1 of each year, to establish a grade for all kinds of grain bought or handled by elevators or warehouses, to be known as "South Dakota grades," not differing, however, from grades in the State of Minnesota. Such grades are to be printed and published in such manner as to give the greatest publicity thereto: *Provided*, That no such publication shall be necessary except when changes are made in such grades, and then the changes so made only shall be published.

South Dakota grades.—Public warehousemen shall grade all grains purchased or handled by them in conformity with the "South Dakota grades," and any person aggrieved by the weights or grades given by any warehousemen may appeal to the board of Railroad Commissioners, and said board is required without delay to adjust the same in accordance with established standards.

Disposition of moneys.—All moneys collected by the commissioners are to be paid into the State treasury, and the Treasurer of State is required to receive the same, and also all fines and penalties collected under the act, and to keep a separate account thereof, and to pay the same only on the order of the commissioners to defray the expenses incident to carrying the provisions of the act into effect.

Effect of warehouse receipt.—The warehouseman issuing a receipt is thereby estopped from denying that the grain represented thereby is the property of the person to whom it is issued or his assigns.

Neglect to deliver grain on demand.—The willful neglect or refusal to deliver the full amount of grain of the kind and grade stored or the market value thereof to the person making a lawful demand therefor, is declared a larceny on the part of the warehouseman, punishable by fine or imprisonment, or both, as is prescribed by law for the punishment of larceny.

Delivery of grain from store.—Upon delivery of grain from store upon any receipt, such receipt shall be marked "canceled," and rendered void. Grain shall not be delivered twice on the same receipt: nor shall any receipt be issued unless for grain actually delivered, and not in excess of the amount thereof.

Provision is made for cases in which a portion only of the grain represented by a receipt is delivered, allowing a new receipt to be issued for the remainder, bearing the same date as the original.

Dividing receipts.—When it is desired to divide a receipt into two or more, or to consolidate two or more receipts into one, the warehouseman consenting, the original receipts are to be canceled, as upon actual delivery of grain; but their numbers are to appear upon the new receipts as explanatory of the transaction. No consolidation is allowed, however, of receipts whose dates differ more than ten days, and all new receipts thus issued must have the same dates as the originals, as near as may be.

Publishing warehouse rates.—Every bonded warehouseman is required to publish, during the first week of September in each year, a table or schedule of rates for the storage of grain during the ensuing year, which shall not be increased during the year. Such rates must be approved by the Railroad Commissioners, and likewise be plainly printed upon all warehouse receipts and tickets.

Duties of Attorney-General and State's attorney.—The Attorney-General is made ex-officio attorney for the Railroad Commissioners, and is required to give them counsel and advice, and begin and prosecute all suits deemed expedient and proper by such commissioners. In criminal prosecutions against warehousemen for violation of the warehouse laws, it is made the duty of the State's attorneys, in their respective counties, to prosecute to a final issue.

Certain combinations unlawful.—It is made unlawful for any public warehouseman to enter into combination with any railroad company, or any corporation, or any individual, by which property of any person is to be delivered for storage or any other purpose contrary to the direction of the owner, his agent, or consignee.

Schedule of grades and copy of law to be posted.—Each warehouseman is required to keep posted conspicuously in his warehouse the schedule of grades established by the commissioners, and also a copy of the act. (Chapter 99, Laws of 1890.)

Certain acts declared misdemeanors.—To knowingly cheat or falsely weigh any wheat or other agricultural product, or to violate any provision of the statute, is made a misdemeanor, punishable by a fine of not less than \$100 or more than \$1,000, and imprisonment for not more than one year.

Testing and sealing scales and measures.—The board of commissioners, or any member thereof, is privileged at any time, without notice, to enter public warehouses and test and seal all weighing scales and measures in use, and for that purpose is authorized to furnish itself with standard weights and measures.

Producers excepted from act.—Producers are permitted to market, store, or ship their own products in any manner they choose, without license or bond.

Warehouse sites.—The following acts have been passed by the legislature of the State of South Dakota on this subject, to wit:

1. An act entitled "An act to provide a procedure for the condemnation of public warehouse sites on the right of way of railways." Approved March 10, 1891.

2. An act amendatory thereof, approved February 3, 1893.

3. An act entitled "An act to provide a procedure for condemnation of public warehouse sites on the right of way of railways." Approved March 4, 1895.

These three acts considered together form a very complete system to attain the end proposed. Its machinery is put in motion only after the railway has refused the privilege of construction of a warehouse upon its depot grounds or warehouse lots to a person or firm requesting it, and the Railroad Commissioners after due consideration have determined that the construction of such a warehouse is necessary and will advance the public welfare. If their determination is adverse to the applicant, it is final, and no further procedure can be had in the premises. In case of a favorable determination, it becomes the duty of the Board of Railway Commissioners to fix the location of the public warehouse, and furnish a memorandum of such determination and of the location of the site to the applicant therefor.

Compensation of the railroad company.—The applicant for the site must file a verified petition in the circuit court of the county where the property is situated, praying that a just compensation to be made for such property may be ascertained by a jury. Provisions are made for the summoning of jurors, the holding of a special term of the court, the empanelling of a jury, the trial and rendering of a verdict, as in a trial in the circuit court. The only question to be tried is that of the compensation to be paid for the property so taken. Upon the return of a verdict the court directs that it be recorded, and enters judgment thereon as the case may require. Upon payment or tender of the damages assessed by the jury to the clerk of the court for the benefit of the railway company, the plaintiff (applicant) may proceed to erect a public warehouse upon such site, the right of occupancy being vested in him or his heirs or assigns.

Side-track facilities.—An act was approved March 6, 1899, requiring railroads to furnish side-track facilities between their main track and elevators, warehouses and flouring mills upon or contiguous to their rights of way, under severe penalties for noncompliance, whenever the Board of Railroad Commissioners orders such side tracks to be constructed and maintained.

WISCONSIN.

Warehouses.—The statute authorizes 3 or more adult persons, residents of the State, to form a corporation to construct and operate warehouses.

Connection with tracks of railroads.—The owner of an elevator or warehouse may, at his own expense, construct a railroad track from such elevator or warehouse to such railroad and connect with the same by a switch at a point within the yard limits of the station or terminus, and the railroad corporation is required to allow such connection. The side track and switch are to be kept in repair and operated for the benefit of the owner by the railroad, but at the expense of the former, who is to pay monthly the actual cost of such maintenance and operation.

False receipts.—The issuance of a receipt by a warehouseman for property not actually in store at the time, or the selling or incumbering, shipping, or in any manner removing beyond his immediate control property received by him, without the consent of the holder of the receipt issued in respect to such property; or the delivering of property to a person other than the one holding the receipt therefor, and the surrender and cancellation of such receipt; or the issuing of a second or duplicate receipt for such property, while any former receipt is outstanding and uncanceled, without writing across the face thereof the word "duplicate," is punishable by imprisonment in the State prison not more than 3 years, nor less than 1 year, or by imprisonment in the county jail not more than 1 year, or by a fine not exceeding \$1,000.

Negotiability of receipts.—A warehouse receipt is made transferable by delivery without indorsement or assignment, and the person to whom it may be transferred is deemed the owner of the property therein specified, so far as to give validity to any pledge, lien or transfer made or created by such person, unless the receipt is marked with the words "not negotiable" plainly written or stamped on the face.

The last preceding section was amended by an act approved April 10, 1899, by adding thereto as follows: "And any warehouse receipt issued by any person or persons keeping, running and managing a public warehouse, on goods, wares, or merchandise owned by him or them, and which he or they have, at the time of issuing such warehouse receipt, actually stored in the said warehouse, shall have the same force and effect to protect the owner and holder thereof on any loan or advance of money he may have made on the same, as a warehouse receipt issued by the keeper and manager of a public warehouse to any other person who brings goods, wares, or merchandise to be stored in such public warehouse."

An act was approved April 26, 1899, permitting all persons, firms, or corporations owning or dealing in grains, seeds, or other farm products, and various other commodities, who own or control the structures wherein any such business is conducted or commodities stored, to issue elevator or warehouse certificates or receipts for any such commodities actually on hand and in store the property of such person, firm, or corporation, and thereby sell, assign, encumber, or pledge such commodities.

The act, however, prescribes various duties to be performed before such certificates or receipts can be lawfully issued, such as a written declaration containing the name and place of residence or location of such person, firm, or corporation, etc., to be filed with the register of deeds of the county wherein such structures are situated, and to be by him recorded.

Nothing in the act, however, is to interfere with or impair the right to issue and negotiate warehouse receipts or certificates under existing laws "or under any regulations of any chamber of commerce or board of trade within the State."

II.

DECISIONS OF THE SUPREME COURT OF THE UNITED STATES, AND OF THE SUPREME COURTS OF CERTAIN STATES, GIVING CONSTRUCTION TO THE LAWS RELATING TO PUBLIC WARE- HOUSES AND ELEVATORS.

SUPREME COURT OF THE UNITED STATES.

Elevator charges may be regulated by State legislation.—An act of the legislature of New York (Laws of 1888, chap. 581) provided that the maximum charge for elevating, receiving, weighing, and discharging grain should not exceed five-eighths of 1 cent a bushel, and that in the process of handling grain by means of floating and stationary elevators the lake vessels or propellers, the ocean vessels or steamships, and canal boats should only be required to pay the actual cost of trimming or shoveling to the leg of the elevator when unloading and trimming cargo when loading: *Held*, that the act was a legitimate exercise of the police power of the State over a business affected with a public interest and did not violate the Constitution of the United States, and was valid.

Munn v. Illinois (94 U. S., 113) reviewed and adhered to and its application in cases decided in the State courts considered. [The case of *Munn v. Illinois* is fully digested in Volume II of the reports of the Industrial Commission, pp. 57, 58.]

Chicago, Milwaukee and St. Paul Railway Company v. Minnesota (134 U. S., 418) explained.

Although the act of New York did not apply to places having less than 130,000 population, it did not deprive persons owning elevators in places of 130,000 population or more of the equal protection of the laws. (February 29, 1892. *Budd v. New York*, 148 U. S., 517.)

Public and private warehouses distinguished under the laws of North Dakota.—Brass, the plaintiff in error, owned and operated a grain elevator in Grand Harbor, N. Dak. Stoesser, the defendant in error, owned a farm adjoining the village, on which in the year 1891 he raised about 4,000 bushels of wheat. On September 30, 1891, Stoesser applied to store a part of his wheat crop for the compensation fixed by section 11 of chapter 26 of the laws of North Dakota for the year 1891, which Brass refused to do unless paid therefor at a rate in excess of that fixed by statute. On this refusal, Stoesser filed in the district court of Ramsey County, N. Dak., a petition for an alternative writ of mandamus. The court granted the writ. Brass made return by answer, and to this Stoesser interposed a general demurrer, which was sustained, and Brass electing in open court to stand on his return, a peremptory writ of mandamus was allowed. From this judgment an appeal was taken to the Supreme Court of Dakota, which affirmed the order and judgment of the district court. Brass sued out a writ of error to the Supreme Court of the United States.

Held, the act of March 7, 1891, of North Dakota, "regulating grain warehouses and weighing and handling of grain," declaring elevators, etc., to be public warehouses and their owners to be public warehousemen and requiring them to give bond conditioned for the faithful performance of their duty as such, fixing rates of storage, and requiring them to keep insured for the benefit of the owners all grain stored with them, does not apply to elevators built by a person only for the purpose of storing his own grain, and not to receive and store the grain of others, and being so construed it does not deny the equal protection of the laws to the owner of an elevator made a public warehouse by it, does not deprive him of his property without due process of law, does not amount to a regulation of commerce between the States, and is not in conflict with the Constitution of the United States. *Munn v. Illinois*, 94 U. S., 113, and *Budd v. New York*, 148 U. S., 517, reviewed and adhered to. (May 14, 1894. *Brass v. North Dakota, ex rel. Stoesser*, 158 U. S., 391.)

Identity of stored merchandise preserved under certain conditions.—Although warehouse receipts, when issued, may fail to state on their face the brands or distinguishing marks, yet if, before any valid liens attach to the property stored, the party storing the same specifically sets apart and allots the merchandise in the warehouse to such receipts, then in the hands of assignees for value, the uncertainty as to goods called for by the receipts will, as against the storer and those seeking to assert his rights, be removed, and the lien of the receipts enforced as to the property thus identified and set apart; and this, though the substitution and setting apart of the property may be done without the knowledge of the holders of the receipts. The rights of such holders rest upon estoppel, and not upon contract. (June 23, 1892. *Hoffman v. Schoyer*, 143 U.S., 598.)

STATE SUPREME COURTS.

ILLINOIS.

Where a warehouseman receives grain, he will be liable to the party storing the same if he delivers it to any other person without authority from the owner, unless the latter has done some act or acts to estop him from denying permission to make such delivery.

Order required for delivery of grain—Sampler's ticket not a warehouse receipt.—It is the usual custom on the board of trade in Peoria, when grain has been consigned to a dealer and the railroad cars in which it was shipped remain upon the track, to cause the grain to be sampled by a person appointed by the board of trade for that purpose, the sampler giving to the consignee a ticket stating the kind and grade of the grain inspected, and the consignee named, with a sample of the grain. It appeared also to have been the custom when a sale was made on the board for the seller to mark on the sampler's ticket the name of the purchaser and the price and give the same to the purchaser, with an order, either verbal or written, to deliver the grain sold at such place as the buyer may designate. It was held that a warehouseman to whom a shipment of grain had been delivered on the order of one who had purchased under the conditions mentioned was not authorized to deliver the grain to such purchaser merely upon the presentation of the sampler's ticket with the name of the purchaser and the price marked thereon, without any order from the seller. The sampler's ticket was not a warehouse receipt, in the sense of the term used in the statute. (June 13, 1885. *Peoria v. Pekin Rwy. Co.*, 114 Ill., 337.)

Warehouse receipts—Effect of possession.—To affect subsequent purchasers without notice and creditors there must be an actual delivery of personal property to consummate a sale; but the rule has its exceptions, as in the case of warehouse receipts. Usage has made the possession of such documents equivalent to the possession of the property itself.

Purchase of grain by warehouseman.—The law makes no distinction in respect to grain purchased or acquired by the holder of such receipts from others, and those acquired from the warehouseman himself. The law does not prohibit him from selling his property, and if he does so in good faith he may become its future custodian, and the fact that he keeps a public warehouse is sufficient to put parties on inquiry as to the ownership of grain stored.

Warehouseman as agent.—Where a warehouseman purchased grain stored by him, for another person, and with such other person's money, and took up his outstanding receipt held by the vendor, it was held that the grain was not liable thereafter to be taken in execution against the warehouseman. (January term, 1875, *Broadwell v. Howard*, 77 Ill., 305.)

Usage of the market.—A person who deals in a particular market must be taken to deal according to the known, general, and uniform custom or usage of that market, and he who employs another to act for him at a particular place or market must be taken as intending that the business to be done will be done according to the custom and usage of that place or market, whether the principal in fact knew of the usage or custom or not.

Warehouse receipts not property of consignor, but evidences of debt.—Under the custom of trade in Chicago a commission merchant to whom grain is consigned, may dispose of the warehouse receipt given him for the same, although directed by the consignor not to sell, but to hold the grain for further orders, if he keeps on hand, ready for delivery when called on, other receipts for a like quantity and grade of grain. The receipts are not the consignor's property, and do not represent his property, but are merely evidences of a debt to the consignee.

Special bins.—The shipper of grain may, by consent of the warehouseman, have his grain kept in a separate bin by itself, which consent must appear upon the

face of the receipt, as well as the number of the bin, or he may instruct the commission man, and require him to keep the identical receipts received upon his shipment, and not part with them except when he sells on his account.

Consignee a debtor.—Where a consignee of grain stores the same in a warehouse, and it is intermixed with other grain of like grade, and a receipt is taken for the amount, the grain being no longer capable of identification, the owner parts with his property in the same, and the consignee to whom the receipt is given, instead of being a bailee, becomes a debtor to the owner.

Accountability of commission merchant.—If a commission man places the grain of his consignor in a warehouse, taking a receipt therefor, and disposes of the receipt, and afterwards fails to keep warehouse receipts for the same amount and grade of grain, it will not amount to a conversion of the grain. The only effect will be a bar to his charges for storage and insurance.

Commission merchant—Compensation for advances.—A commission merchant may rightfully sell grain consigned to him to reimburse himself for advances made, after a reasonable time, when such is the usage of trade.

Commission merchants—Storage and insurance charges.—Accounts of sales rendered monthly by a commission merchant to the consignor for several years, containing items of charges for storage and insurance, unobjected to until after suit brought by the former for a balance due him, is prima facie evidence of the correctness of the account, and the right to make such charges. (September term, 1877. *Bailey v. Bensely*, 87 Ill., 556.)

Inspection of grain—Inspectors appointed by board of trade.—By the act of 1867, incorporating the East St. Louis Board of Trade, there were conferred upon that board all the powers and privileges, and it was subjected to all the restrictions, of the Chicago Board of Trade, as then existing under its charter of 1859. Section 10 of the charter of the Board of Trade of Chicago merely authorizes an inspection of grain by inspectors appointed by the board of trade among its members, or to any other person who may agree thereto, and such inspectors so appointed have no authority to act in any other case or under other or different circumstances.

Board of trade inspectors not affected by Illinois act of 1871.—The act of 1871, for the regulation of public warehouses, was not intended as an amendment of the charters of boards of trade. That act was intended as a complete system of itself, in no manner connected with or depending upon any other law on the subject. Under it no provision is made for the appointment of inspectors of grain for public warehouses in Class B.

Under the act of 1871, in relation to public warehouses, it making no provision for the appointment of inspectors of grain in Class B, the owners or proprietors of that class of warehouses could conduct their business without inspection, as before the passage of the law. This seeming defect in the act can not be construed to invest boards of trade with the power of appointing such inspectors.

Section 19 of the act of 1871 prohibits warehousemen of Class B from receiving and mixing the grain of different owners until the same shall have been inspected in all places where there are legally appointed inspectors of grain. Such inspectors are not such as are appointed by a board of trade, but such as might be appointed under power subsequently conferred by law.

So inspectors appointed by the Board of Trade of East St. Louis are not legally appointed under this section. (January term, 1883. *East St. Louis Board of Trade v. People ex rel. McCormick*, 105 Ill., 382.)

Warehouse receipts.—A warehouse receipt stands in the place of the grain it represents, and the possession of the receipt is regarded as the possession in law of the grain itself; and as the warehouseman is not required to surrender the grain until the return of the receipt and the payment of charges, one who obtains it under such circumstances as would charge him with notice of a want of title in his assignor, the real owner, may recover of him, in trover, the value of the grain on his refusal to surrender the receipt to him. (November term, 1882. *Canadian Bank v. McRae*, 106 Ill., 281.)

The weight of the American authorities is that when the sale or exchange is part of a mass of the same kind, quality, and grade—as of part of the corn or wheat in an elevator—separation from the mass or other specification of the particular part sold is unnecessary to its appropriation, independent of the statute vesting the ownership in the holder of a warehouse receipt. (May 11, 1891. *Cloke v. Shafroth*, 137 Ill., 398.)

Where the grain of different owners has all been intermingled in one common mass, according to the usage of warehousemen and without objection by the owners, it becomes common property, owned by the several parties in the proportion in which each has contributed to the common stock.

The grain being thus owned in common, the several owners are subject to sustain any loss pro rata which might occur by diminution, decay, or otherwise. (April term, 1864. *Dale v. Olmstead*, 36 Ill., 150; S. C., 41 Ill., 344.)

Where grain is stored in an elevator, the length of time it shall remain is optional with the owner, so long as he sees fit to pay storage.

Where a person puts grain in a warehouse for the purpose of storage and the warehouseman converts the grain to his own use by manufacturing the same into flour and selling the same, receiving the money therefor, the owner of the grain may waive the tort and recover from the warehouseman in assumpsit for money had and received for the value of the grain. (September term, 1869. *Ives v. Hartley*, 51 Ill., 521.)

Warehouses established under act of 1871 (Rev. Stat., 1874, p. 820) are public agencies, and the proprietors thereof, as licensees, pursue a public employment which public policy forbids shall be so conducted as to expose them to temptation of serving their personal interests at the expense of their duty to the public.

A public warehouseman has no right under the act of 1871 to buy and store his own grain, issuing his own warehouse receipts to himself as an individual, and buying and selling through his own warehouse, as such a course is inconsistent with the full and impartial performance of his duty to the public.

The failure of warehouse commissioners to question the legality of private grain deals by warehousemen through their own houses is not a construction of the act of 1871 in favor of such practice.

A stockholder in a public warehouse can not use the property to carry on his individual business as a grain dealer.

An injunction against one in his relation as a stockholder in a public warehouse is not binding upon him after the relation of stockholder ceases. (June 18, 1898; rehearing October 6, 1898. *Central Elevator Co. v. People ex rel. Moloney*, Attorney-General, 174 Ill., 108.)

MINNESOTA.

A deposit of grain for storage is a bailment, the title remaining in the depositor, so that he is deemed to be the owner of the grain in the warehouse to the amount of his deposit, although the identical grain he deposited has been removed and other grain of like kind and quality substituted in its stead.

The holders of receipts for grain so deposited, of the same kind and quality, are tenants in common in the mass of grain of that kind and quality in the warehouse, the interest of each being limited to the amount called for by his receipt.

The warehouseman may also be tenant in common with them in such mass, as where he puts his own grain in the warehouse or purchases from a depositor. His interest in the mass is limited to the excess above what is necessary to meet his outstanding receipts.

He may remove and dispose of such excess as his own. If he sell as his own any grain beyond such excess without express consent of the depositors his sale passes no title, and the owners may follow the grain into the hands of the purchaser and recover from him for a conversion. (February 18, 1890. *Hale v. Pillsbury*, 43 Minn., 38.)

By laws 1887 (ch. 10, sec. 2, subdivision P) a railway company is obliged to give equal or substantially similar facilities for the transportation of grain to all persons who in good faith erect or desire to erect warehouses at any of its stations; and if a demand therefor is unreasonably refused the State railway and warehouse commission may, after due consideration, enforce the performance of such duty.

The railway company may impose reasonable terms and conditions upon persons who demand such facilities, but they must be the same for all. (September 8, 1893. *Farwell Farmers' Warehouse Association v. M., St. P. and S. Ste Marie Rwy. Co.*, 55 Minn., 8.)

Laws 1876, chapter 86, section 6, not repealed by Penal Code, section 415.

A receipt for grain placed in store, which in all other respects constituted a contract of bailment, contained the following: "The conditions on which this wheat is received at this elevator are that Rieger [the warehouseman] has this option—either to deliver the grade of wheat that this ticket calls for or to pay the bearer the market price for the same, less elevator charges, on surrender of this ticket." *Held*, that this did not render the contract one of sale; it merely gave the warehouseman an option to buy when the receipt was presented. This option he could only exercise when the receipt was presented and by paying the money. Judgment below affirmed. (November 16, 1894. *Minnesota v. Rieger*, 59 Minn., 151.)

Defendants were indicted under laws of 1895, chapter 149, for refusing to turn over unclaimed freight to a licensed public warehouseman after twenty days from the receipt thereof.

Held, this act is unconstitutional and void, not being a lawful exercise of the police power of the State.

Causes were remanded with directions to the court below to dismiss indictments. (May 27, 1897. *Minnesota v. C. M. and St. P. Rwy. Co. et al.*, 68 Minn., 381.)

Statement of facts.—Swart was a general warehouseman; one Foster delivered to him certain wheat at the warehouse of defendant, at Minneiska. All of said wheat was kept in a bin, and kept by itself. Receipts were issued which ultimately passed to Robson, the plaintiff. The receipts described the wheat as "No. 2 wheat."

Held, the receipts or memoranda did not estop the warehouseman from showing that the wheat was inferior to No. 2, and the offer to deliver to such purchaser of the memoranda the identical wheat delivered was a sufficient offer to perform his contract by the warehouseman. (*Robson v. Swart*, 14 Minn., 287.)

NORTH DAKOTA.

Rates of storage, etc., may be fixed by law.—Chapter 126 of the session laws of 1891 considered, and sections 4 and 11 thereof held to be constitutional, in so far as they define public warehouses, and in so far as they prescribe maximum rates of charges for elevating and storing grain in the public warehouses, as they are defined in section 4 of the act. (*State ex rel. Stoesser v. Brass*, 2 N. Dak., 482; S.C. 153 U. S., 391.)

(See decision of Supreme Court of the United States in this case, vol. 153, p. 391.)

Identity of grain lost in storage.—The owner of mortgaged wheat delivered the same to an elevator and turned over to defendant in payment of a claim the tickets issued by the elevator company. They were general storage, and not special bin tickets. *Held*, that defendant had no control over the identical wheat covered by the mortgage, or over the mass with which it was mingled, but could only claim from the elevator company the delivery to him of the number of bushels named in the ticket of the grade therein specified, without reference to the source from which the company should obtain the grain for delivery, and therefore *held* that the mortgagee could not maintain replevin against the defendant for the mortgaged wheat, he being neither in the actual nor in the constructive possession thereof. (June 2, 1898. *Best v. Muir*, 8 N. Dak., 44.)

Loss or destruction of property in storage.—The burden rests upon the bailee to show the loss or destruction of the property bailed, if such be the fact. No other rule could be admitted. It would generally be impossible for the bailor to show that the property had not been lost or destroyed. It was otherwise with the bailee in possession of the property. [Defendants had not introduced any testimony in the cause.] (April 24, 1899. *Marshall v. Andrews*, 8 N. Dak., 364.)

OREGON.

A warehouseman receiving grain on storage and mixing it with other grain of the same nature and quality also stored in his warehouse in the usual course of business is not chargeable with a conversion by reason of such act alone.

The identity of grain so stored is not lost, nor is it thereby placed beyond a lien thereon. (March term, 1883. *Sears v. Abrams*, 10 Or., 499.)

In the absence of statutory enactment a warehouseman's receipt is not a negotiable instrument, and an assignment thereof operates merely as a transfer of the property deposited and passes no better title to the purchaser than the vender had. (March term, 1884. *Solomon v. Bushnell*, 11 Or., 277.)

An attaching creditor is to be deemed a purchaser in good faith and for a valuable consideration from the date of the attachment.

When by a warehouse receipt it is agreed to deliver the property to any one to whom the receipt may be indorsed, as to one or to his order, a symbolical delivery of the property may be effected by transfer of the receipt, and the warehouseman in such case becomes bailee to such transferee. (November 23, 1885. *Gill v. Frank*, 12 Or., 507.)

Where several depositors have wheat stored in a warehouse in a common mass and a deficiency occurs, from whatever cause, not occasioned by the fault of any such depositors, the loss must be borne by each of them in the proportion which the amount of his wheat bears to the whole amount deposited. But it seems a

depositor will not be liable to account, although he has received an excess, unless such loss occurred after he stored his wheat. (March term, 1887. *Brown v. Northcutt*, 14 Or., 529.)

The deposit of wheat in a warehouse which has been mingled with the wheat of other persons in a common mass is a bailment, and the depositor does not lose his right thereby to reclaim it. Where a warehouseman ships wheat to a third party without the consent of the depositor, such depositor is not estopped from claiming damages for its conversion, unless by acquiescing in the acts of the warehouseman he has misled such third party. (April term, 1887. *McBee v. Ceaser*, 15 Or., 62.)

WISCONSIN.

Plaintiff being the owner of a certain quantity of wheat, which, with his consent, was stored in mass with that of others in a warehouse, after shipments had been made from the mass, until a quantity not greater than that due him was left, this was his absolute property as against the warehouseman, and any invasion of that quantity by the latter was a wrongful conversion, and plaintiff might follow the wheat wherever it could be identified. (June term, 1866. *Young v. Miles*, 20 Wis., 646.)

Under both the warehouse-receipt act and the factor's act, if a principal empowers his factor to purchase and retain a negotiable warehouse receipt, or transfers to him possession of such receipt, the factor, having the apparent legal title (though clothed with a trust toward the principal), has power not only to sell but to pledge the receipt to one dealing with him in good faith; and notice that he holds the receipt as a factor is not notice of any limit of his power, as between him and his principal, to sell or pledge it, though such sale or pledge will not bind the principal if the vendee or pledgee has notice that it is made in violation of the principal's instructions. (August term, 1877. *Price v. Wis. Marine & Fire Ins. Co.*, 48 Wis., 267.)

PART VI.

ADULTERATION OF FOOD PRODUCTS.

ADULTERATION OF FOOD PRODUCTS.

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REVIEW OF THE EVIDENCE TAKEN BY THE SENATE COMMITTEE ON MANUFACTURES.

The Senate Committee on Manufactures was authorized by the Fifty-fifth Congress to investigate and ascertain what manufacturers adulterate foods and drinks, and which, if any, of such products are fraudulent. In accordance with this authorization, the committee held numerous sessions in Washington, Chicago, and New York between March, 1899, and February, 1900, inclusive, and heard the testimony of a large number of witnesses, including both professional chemists and physicians who had analyzed food products or observed their physiological effects, and persons practically engaged in the manufacture and sale of foods. Written statements were also received from a number of authorities who were not present in person. Dr. H. W. Wiley, Chief Chemist of the United States Department of Agriculture, besides stating the results of some of his own investigations, met with the committee in some of its sessions and took part in the questioning of other witnesses. The testimony taken by the committee makes a printed pamphlet of more than 600 pages. (Senate Report No. 516, Fifty-sixth Congress, first session.) Topical digests of this testimony and of certain additional statements afterwards submitted to the Senate in reply to some of the testimony concerning baking powder, together with a digest of the pure food laws of the various States, have been prepared in pursuance of Senate resolutions passed December 6, 1900, and January 6, 1901. The digests of testimony, etc., are by Charles E. Edgerton and Max West; that of the pure food laws is by E. Dana Durand.

EXTENT OF ADULTERATION.

There seems to be a general agreement that foods of American origin have improved in purity during recent years, except in certain particulars. Two witnesses call attention to the lack of pure American food products in former years and the consequent general use of foreign goods, but agree that American manufacturers are now producing even better goods than can be imported. Two explanations are given for the improvement—an advance in national character

and the discovery that honesty is the best policy. It is suggested that more money is to be made out of pure foods honestly labeled than out of adulterated products.¹

Dr. Wiley has stated that probably 95 per cent of all food products have been adulterated at some time in some country; but he estimates that scarcely 5 per cent of the food products bought at random, other than spices and ground coffee, would now be found to be adulterated. Moreover, the adulteration which is injurious to health is much less extensive than that which is merely more fraudulent.² Other witnesses who have analyzed foods have found very little injurious or poisonous adulteration.³ On the other hand, it is said to be impossible to distinguish injurious adulterations from those which are merely frauds, food which is wholesome for one man being unwholesome for another.⁴

Lead poisoning.—Attention is called to the danger of getting soluble salts of lead and tin from the accidental dropping of solder into canned vegetables and from the use of a large proportion of lead in the tin of which the cans are made. The excess of lead causes what is known as painters' colic.⁵

Another source of lead poisoning is the use of lead in siphons used for mineral waters.⁶

MIXED FLOUR.

A kind of terra alba known as mineraline, produced in a North Carolina factory, is said to have been used in an adulteration of flour. It is absolutely insoluble in the stomach, and serves as a mechanical impediment, loading up the stomach with a dead weight. Sulphate of lime or gypsum, ground to a white powder, has also been used as an adulterant of flour.⁷

It is not denied that before the passage of the mixed-flour law it was a common practice to adulterate flour with corn starch, corn flour, and, in some cases, with mineral substances; but the law is thought to have been effective in stopping nearly all the mixing of flour except in the case of such preparations as pancake flour, which are expected to be mixed.⁸

The increased confidence in American flour abroad resulting from the passage of the mixed-flour law is shown to have produced a decided increase in the exports of that commodity,⁹ and the law is generally considered satisfactory, minor amendments only being suggested.¹⁰

BAKING POWDER.

The consideration of the relative merits of baking powder made with cream of tartar and that containing alum gives rise to a number of unsettled questions. Two witnesses claim that the popular prejudice against alum baking powder is kept alive by advertising or reading matter paid for by the manufacturers of cream of tartar baking powder, elsewhere referred to as the baking-powder trust.¹¹ Great stress is laid upon the relative cheapness of alum baking powder;¹² but, on the other hand, it is shown that it is much inferior in leavening power to that made with cream of tartar,¹³ and also that while it is sold at wholesale at very

¹ Hanney, pp. 63, 64; Furbay, pp. 60, 62, 63.

² Wiley, pp. 41, 586.

³ Frear, p. 481; Jenkins, p. 449.

⁴ Vaughan, p. 202; Prescott, pp. 197, 198.

⁵ Wiley, p. 42.

⁶ Edwards, p. 288.

⁷ Wiley, pp. 31, 32.

⁸ Gallagher, pp. 3, 4, 5, 135, 136; Eckert, pp. 26, 27, 28; Wiley, p. 21.

⁹ Gallagher, pp. 7-11, 136; Eckert, p. 27.

¹⁰ Gallagher, pp. 2, 3; Eckert, p. 27; Furbay, p. 62.

¹¹ Rew, pp. 87-89; Austen, pp. 531, 532; see also Delafontaine, n. 230

¹² Austen, pp. 542, 543.

¹³ Weber, p. 606; Withers, p. 617; McMurtrie, p. 600.

low prices it frequently reaches the consumers at prices as high as those of cream-of-tartar baking powders.¹

Cream of tartar as used in bread making is generally considered uninjurious or even beneficial,² while the charge is brought against alum that aluminum compounds do not occur in either the vegetable or the animal matters which form the natural foods of man.³

Cream of tartar.—There is practically no denial of the wholesomeness of cream-of-tartar baking powder, though one or two witnesses mention that it would be poisonous or injurious in very large doses,⁴ and Professor Munroe considers baking-powder bread in general less wholesome than that made by the process of fermentation.⁵ The chief question concerning cream of tartar is as to its purity. The consulting chemist for three of the principal baking-powder companies says the material used by those companies does not vary appreciably from a purity of 100 per cent;⁶ but other chemists have found the purity of commercial cream of tartar to vary greatly, and some samples bought for cream of tartar to contain no cream of tartar at all.⁷

Alum in baking powder.—There are several questions concerning alum baking powder as to which great difference of opinion exists. The more important of these questions are (1) whether the alum is completely decomposed in the baking of bread, as it is intended to be, or whether some portion of it remains in the bread as alum; (2) whether the residuum is soluble in the digestive juices, and (3) whether it is injurious in the quantities in which it occurs in bread.

The residuum left in the bread by alum baking powder consists of hydrate of aluminum and sulphate of sodium, and, in the case of an alum and phosphate powder, phosphates of calcium and sodium. It is claimed on behalf of the alum baking powders that no alum can be left in the food; that the use of too much alum in baking powder would increase the expense, and is sure to be avoided for commercial reasons.⁸ On the other hand, it is believed by several authorities that alum may sometimes occur in the bread,⁹ and one witness says there are good authorities who believe that the decomposition of the alum is never complete, and that some unchanged alum always remains in the bread.¹⁰

One chemist, who is an officer of a baking-powder company, denies that aluminum hydrate is soluble in the digestive juices, on the authority of an English analyst whose conclusion was based upon experiments on living animals.¹¹ Two authorities consider the solubility of aluminum hydrate doubtful,¹² and several others regard its solubility as established by experiments or otherwise.¹³

Two manufacturers and three apparently disinterested chemists consider the use of alum baking powder harmless, and one of the chemists even goes so far as to say that it is really the most perfect baking powder, because its residuum is smaller than that of any other, and because it generates gas only very slowly before it is heated, enabling the baker to do his kneading more thoroughly and thus produce a more wholesome bread than when it is necessary to hurry the dough into the oven.¹⁴ Several other authorities consider the wholesomeness of

¹ Mitchell, p. 107.

² Prescott, p. 200; Vaughan, p. 206.

³ Weber, p. 606; McMurtrie, p. 599; Munroe, p. 608.

⁴ Delafontaine, p. 232.

⁵ P. 608.

⁶ McMurtrie, p. 594.

⁷ Wiley, p. 584; Mitchell, p. 117; Frear, p. 529.

⁸ Rew, pp. 87-89; Austen, pp. 532, 533.

⁹ Mallet, pp. 551, 552, 559; Mott, 635; Crampton, 623; Mitchell, 108; Vaughan, 205; Woodward, 610.

¹⁰ McMurtrie, p. 596.

¹¹ Rew, pp. 88, 104.

¹² Mew, p. 612; Mott, p. 635.

¹³ Prescott, pp. 196, 197; Mitchell, p. 108; Weber, p. 606; McMurtrie, pp. 596-598; Munroe, p. 638; Fairhurst, p. 620; Crampton, p. 624.

¹⁴ Rew, pp. 87-89; Murray, p. 67; Austen, pp. 535, 541; Delafontaine, p. 230; Petraens, pp. 292, 293.

alum baking powder still in doubt, and three of these gentlemen remark that the burden of proof should be upon those who favor its use.¹

There is a decided preponderance of evidence to the effect that alum baking powder is positively harmful. It is charged with producing a great variety of injurious effects, especially in the digestive tract. It is believed by some of the expert witnesses that its continued use is likely to produce chronic indigestion; and one specialist in diseases of the alimentary tract has reached the conclusion that the great majority of digestive troubles may be traced to white bread and quick hot breads made with baking powder. The claim that alum baking powder makes better bread than the other kinds is offset by the statement that bread made with it is likely to be inferior, the action of the alum on the bicarbonate of soda being irregular and uncertain. Bread made with alum baking powder is also said to have an unpleasant taste, due to the presence of sodium sulphate. A German authority is quoted to the effect that intense nervous disturbance may ultimately result from the absorption of aluminum compounds, the poisonous action of which is very slow. Alum is characterized as an insidious cumulative poison.²

Proposed legislation.—Two legislative solutions of the baking-powder problem are proposed: (1) That manufacturers be required to state the composition of the powder on their labels, and (2) that the use of alum be prohibited. There seems to be no difference of opinion as to the desirability of the first measure, if the use of alum is to be permitted at all; even the advocates of alum baking powder assent to the proposed requirement, though they suggest that instead of giving the formula it would be better to state the substances left in the food, or else that the manufacturer should have the privilege of affirming on the label the harmlessness of the materials used. One chemist advises that all baking powders be labeled as to the minimum percentage of gas they are calculated to evolve.³ A number of witnesses, however, go so far as to recommend the absolute prohibition of the use of alum in baking powder.⁴

Use of alum for whitening bread.—Several witnesses refer to the use of alum by bakers for the purpose of whitening bread and improving its appearance, and wide differences of opinion are expressed as to the harmfulness of this practice. One chemist says the real harm consists in using wormy or inferior flour, the quantity of alum used being too small to do any harm.⁵

Use of alum in the filtration of water.—One of the advocates of alum baking powder speaks of the use of alum on a large scale in the filtration of water in many cities.⁶ Another authority, however, regards this use of alum as of doubtful wisdom, and recommends the substitution of salts of iron. He says further that the alum is intended to be precipitated, but that even if the whole amount remained in the water it would be only in minute quantities as compared with the amount used in alum baking powders.⁷ Two witnesses call attention to the prohibition of the use of alum in England, France, and Germany.⁸

¹ De Schweinitz, p. 614; Munroe, pp. 608, 609; Mew, pp. 612, 618; Woodward, pp. 610, 611; Hallberg, p. 81; Crampton, p. 624.

² Wiley, pp. 46, 588; Fairhurst, p. 620; Johnston, pp. 225, 226; Wise, p. 627; Sternberg, p. 607; Kerr, p. 606; Fleming, p. 604; Johnson, p. 615; Van Reyepen, p. 615; Wyman, p. 616; Cornwall, p. 618; Appleton, p. 619; Tucker, p. 618; Price, p. 619; Mallet, pp. 562, 563, 564, 565, 566, 624; Mott, pp. 630-636; Freeman, pp. 619, 620; Stringfield, pp. 548, 549; Cuthbert, pp. 609, 610; Thurber, p. 581; McMurtre, pp. 597, 598, 601; Vaughan, pp. 202, 205, 206; Weber, p. 606.

³ Wiley, p. 47; Mitchell, pp. 107, 109; Prescott, pp. 196, 197; Rew, p. 88; Delafontaine, pp. 230, 231; Eaton, p. 236.

⁴ Prescott, p. 625; Freeman, p. 620; Johnston, p. 626; Wise, p. 627; Fairhurst, p. 620; Kerr, p. 606; Appleton, p. 619.

⁵ Wiley, p. 46; Stringfield, p. 549; Crampton, pp. 622, 623; Petraens, p. 292.

⁶ Austen, pp. 583, 584.

⁷ Mallet, p. 555.

⁸ McMurtre, p. 600; Crampton, p. 622.

OLEOMARGARINE.

A number of gentlemen more or less intimately associated with the oleomargarine industry describe the methods of manufacture, and assert that only pure materials are used and that all the processes are cleanly.¹ Their testimony as to the wholesomeness and nutritive value of oleomargarine is confirmed by a number of disinterested witnesses.²

One chemist, who does not think the best butterine equal to the best butter, says that there are grades of butter which are inferior to good or average butterine;³ and this impression is confirmed by reading some of the descriptions given of the processes of renovating rancid and inferior butter.⁴

Fraudulent sale.—The principal charge brought against oleomargarine is that it is sold fraudulently for butter.⁵ On the other hand, both dealers and manufacturers of oleomargarine give testimony tending to show that the product is sold for what it is, that it is advertised widely, and that purchasers, even when they ask for butter, know whether they are getting butter or oleomargarine from the difference in price.⁶ One witness, however, makes the point that while keepers of boarding houses and restaurants know what they are buying, their boarders do not know what they are getting on the table.⁷

Imitative coloring.—The use of coloring matter in butter and oleomargarine is a vexed question. It appears that it is now a nearly universal practice to color genuine butter during the winter months. This is said to be done for the sake of uniformity and to make the product pleasing to the eye.⁸ It is claimed on behalf of the butter interests that a distinction should be made between this coloring of butter and the coloring of another substance, such as oleomargarine, in imitation of butter. On the other hand, some of the oleomargarine manufacturers assert that their product is not colored to imitate butter, but for the same reason that butter is colored.⁹ One witness even goes so far as to say that since the advent of butterine the creamery men have found it necessary to imitate it by coloring their butter.¹⁰

The proposal to prohibit the coloring of oleomargarine in imitation of butter finds some support among food experts,¹¹ but is naturally enough objected to by those who are interested in the oleomargarine industry,¹² one of whom says that a law prohibiting the use of coloring matter in either butter or oleomargarine would hurt the butter industry more than the oleomargarine industry.¹³ Several witnesses believe that oleomargarine could not be sold unless it were colored in imitation of butter.¹⁴

The nature of the coloring matter used is another question concerning which there are different opinions. It is charged that the use of vegetable colors has been largely superseded by aniline dyes,¹⁵ but this is denied.¹⁶

¹ Sterne, pp. 221-228, 341; Miller, pp. 322-324; Pirrung, pp. 313-315; Dadie, pp. 325, 326; Jelke, pp. 332, 333; Potter, pp. 335, 337.

² Wiley, pp. 14, 16; Delafontaine, p. 231; Mallet, p. 556; Hobbs, p. 496; Miller, pp. 343-350.

³ Delafontaine, p. 231.

⁴ Sterne, pp. 221, 226, 227; Duff, p. 498.

⁵ Frear, p. 329; Hobbs, pp. 495, 498; Knight, pp. 139-141, 146-149.

⁶ Cliff, pp. 154, 155; Pollak, p. 152; Broadwell, pp. 153-166; Somes, pp. 151, 152; Sterne, pp. 225, 226; Pirrung, pp. 319, 320, 338; Dadie, pp. 326-328; Potter, p. 336; Thompson, p. 338; Miller, p. 324; Jelke, p. 333; Sterne, p. 342.

⁷ Adams, p. 208. See also Mitchell, p. 109.

⁸ Knight, pp. 141-143; Pirrung, p. 317.

⁹ Sterne, pp. 223, 224; Miller, p. 324.

¹⁰ Miller, p. 324.

¹¹ Knight, pp. 110, 127.

¹² Pirrung, p. 318; Sterne, p. 224.

¹³ Sterne, p. 224.

¹⁴ Knight, pp. 139, 141; Adams, p. 208; Broadwell, 166.

¹⁵ Delafontaine, p. 229; Vaughan, p. 203.

¹⁶ Sterne, p. 223; Pirrung, p. 315.

Opposition to the tax.—Several witnesses object to the existing tax on oleomargarine on the ground that it increases the price of a product used by persons in moderate circumstances. The existing tax of \$48 a year is complained of as being too high a tax to expect from retail dealers.¹ On the other hand, the constitutional point is raised that nothing can be done by the National Government to control the manufacture and sale of such products except through an internal-revenue law.²

Benefit to the animal industry.—A Chicago commission merchant who has been closely identified with the oleomargarine business believes that while the production of imitation butter is only about 6 per cent as great as that of butter from cream and milk, the demand for the fats used has raised the price of cattle and hogs throughout the country.³

OTHER ANIMAL PRODUCTS.

Milk.—While milk is often adulterated by the addition of water and by the use of preservatives and sometimes coloring matter, the most common form of adulteration is probably the abstraction of the fat in the cream, as in skimmed milk.⁴ It is stated that a child fed upon skimmed milk may suffer as much as if a poison were administered, from not getting the proper food constituents.⁵

Condensed skimmed milk.—Several witnesses call special attention to the use of skimmed milk in the preparation of condensed milk, a practice which is said to endanger the lives of children fed with the product by slowly starving them.⁶

Two witnesses, one of whom represents a leading condensed milk company, consider a national law necessary to prevent the sale of condensed skimmed milk, because it is so commonly shipped from State to State and used on shipboard.⁷

Cheese.—It appears to be a common practice to adulterate cheese by substituting for the butter fat other fats which are inferior to it, though not necessarily less nutritious or at all deleterious. Cheese filled in this manner is said to be undesirable in that it does not ripen normally and soon spoils, besides being less palatable.⁸

Lard.—It appears from the testimony of several witnesses that lard is quite generally adulterated with cotton-seed oil and beef stearin, neither of which is considered deleterious to health.⁹ Coconut oil is also said to be used as a substitute for lard; but the only lard adulterant which is considered injurious to the health is paraffin wax, which is sometimes used instead of stearin to bring back the consistency of the lard after cotton-seed oil has been added.¹⁰

Canned beef.—Attention is called to the lack of nutritive quality in canned roast beef and in boiled beef, on account of the extraction of part of the valuable material.¹¹

Horseflesh.—It is thought probable that horseflesh has been sold in this country for food, as it is known that horses are slaughtered for food in this country, and it would be easy to make horseflesh pass for beef, especially for the coarser grades of beef. Its sale in many parts of Europe has become quite common.¹²

¹ Pirrung, pp. 320-322; Jelke, pp. 83, 834; Wiley, p. 14.

² Knight, p. 138.

³ Sterne, p. 341.

⁴ Wiley, p. 13.

⁵ Vaughan, p. 202.

⁶ Hallberg, p. 82; Monred, pp. 64, 65; Duff, p. 497; Rogers, pp. 440-443.

⁷ Rogers, p. 443; Monred, p. 65.

⁸ Wiley, p. 14; Mitchell, p. 110.

⁹ Wiley, pp. 15, 16; Mitchell, p. 125; Jenkins, p. 451; Eaton, pp. 234, 235.

¹⁰ Mitchell, pp. 125, 127.

¹¹ Hallberg, p. 81.

¹² Wiley, p. 40.

Fraudulent sales of game birds and fish.—The sale of English sparrows for reed birds, and of other birds for high-priced game birds which they resemble, is said to be a common commercial fraud. Restaurants and markets often sell one kind of duck for another, and other turtles for terrapin. The sale of one kind of fish for another, as in the case of spurious sardines, is a fraud of similar nature which is also objected to.¹

SUGAR, SIRUP, AND GLUCOSE.

Sugar.—Representatives of the principal sugar-refining companies testify that sugar as now made is pure, though formerly it was commonly adulterated on account of the cheapness of glucose.² Concerning the purity of powdered sugar there is a difference of opinion, two witnesses thinking it nearly always pure,³ while one intimates that it is generally adulterated with cornstarch, and another says it contains an insoluble substance, probably mineraline.⁴ Maple sugar is said to be adulterated very extensively with yellow sugar from the refineries, though pure maple sugar can be obtained from Vermont and elsewhere.⁵

Sirup and molasses.—It appears that table sirup and molasses are adulterated with glucose to a considerable extent,⁶ but this is especially true of maple sirup, on account of the expensiveness of the genuine article.⁷ One manufacturer, however, states as a result of his experience that the greater part of the maple sugar sold is pure.⁸

It seems that extracts of hickory bark have been used to give the maple flavor to sirup, but it is stated that neither this nor any artificial maple flavor has ever been used successfully.⁹

Nutritive value of glucose.—The preponderance of testimony is to the effect that glucose is a nutritive and wholesome food;¹⁰ but one witness believes it to be harmful,¹¹ and another considers its wholesomeness so doubtful that he prefers to avoid it.¹²

Proposed labeling law.—All the witnesses who discuss the question are in favor of requiring sirup adulterated with glucose to be labeled as to its composition.¹³

CONFECTIONERY.

The main constituents of confectionery are sugar, glucose, and flour, all of which are nutritious and appeal to the natural taste of the child for sweets. Sweet materials of vegetable origin are considered beneficial, furnishing heat and adipose tissue. In the higher grades of candy pulps of fruits and nuts are used, adding much to the expense. In acidulated goods, such as lemon drops, citric or tartaric acid is generally used. For flavoring, both vegetable and chemical flavors are used.¹⁴

Injurious materials.—It appears that terra alba has been largely used in confectionery, but its use is said by the confectioners themselves to have been dis-

¹ Wiley, p. 40.

² Schiller, pp. 430, 431; Havemeyer, pp. 466, 467.

³ Schiller, p. 431; Tucker, p. 436.

⁴ Smith, p. 134; Gallagher, p. 4.

⁵ Wiley, pp. 29, 30; Scully, p. 95.

⁶ Wiley, pp. 28-30; Jenkins, p. 451; Scully, p. 90.

⁷ Wiley, p. 29; Berry, pp. 96, 97; Scully, pp. 90-93.

⁸ Berry, p. 97.

⁹ Wiley, p. 29; Scully, p. 93.

¹⁰ Wiley, p. 21; Prescott, p. 197; Mallet, p. 556; Scully, p. 94.

¹¹ Piffard, p. 192.

¹² Hallberg, pp. 82, 83.

¹³ Berry, pp. 98, 101; Wiley, p. 30; Mitchell, p. 119; Chittenden, p. 423.

¹⁴ Wiley, pp. 30, 31; Gunther, pp. 306, 307; Berry, p. 303.

continued. While it is not poisonous, its use in confectionery or other food is severely condemned by scientists. The use of alcoholic materials in gum drops and other candy is also considered extremely reprehensible, and its prohibition is recommended. Poisonous coloring matters have also been found, such as aniline dyes contaminated with arsenic.¹ But the Confectioners' Association of the United States, which is said to include almost every reputable confectioner in the country, was organized with the purpose of preventing the use of deleterious substances, and it is believed to have succeeded. It maintains a fund for the prosecution of manufacturers who use terra alba. It investigates cases in which sickness is said to have been caused by eating candy, and usually finds that that was not the true cause.²

National regulation proposed.—The confectioners themselves are foremost among those who desire national legislation to regulate the manufacture of candy, and to suppress the numerous small and ill-conducted concerns, such as those operated in basements and cellars by ignorant persons.³

HONEY.

Adulteration of extracted honey.—There is considerable testimony tending to show that honey is adulterated very extensively. Dr. Wiley thinks it a safe estimate to say that half the strained honey on the market in the United States is adulterated. The principal adulterant used is glucose, though it is said that cane sugar is also used, both by direct addition to the extracted honey and by feeding it to the bees. Attempts have been made to feed glucose to the bees in a similar manner, but they have not been successful.⁴ It is remarked by two witnesses that a piece of comb in strained honey is a badge of fraud, genuine honey not being sold in that way.⁵ The adulteration of honey is said to be carried on by the wholesale dealers, not by the bee keepers themselves.⁶

Proposed legislation.—The only legislation asked for in the case of honey is for the purpose of preventing fraud, for the benefit of the bee keepers as well as of the public; and the measure proposed is the requirement of an honest label.⁷

JELLY.

Old-fashioned pure fruit jelly seems to have gone out of fashion, as far as the commercial product is concerned, except in the case of some of the high-priced goods. Commercial jelly is made sometimes of gelatin, and sometimes the foundation is glucose, to which is added a certain amount of apple juice from skins and cores obtained from dried-apple factories. In either case the so-called jelly is artificially flavored and colored.⁸ An acid preparation is also used in the glucose jelly to make it "jell." It seems probable that hydrochloric acid in very small proportions is generally used for this purpose, and this is not considered injurious in the quantities in which it is used; but it is charged that sulphuric acid is also used in some cases.⁹ Acetic acid is thought to be used for flavoring in such small quantities as to be uninjurious.¹⁰

¹ Wiley, pp. 31, 32; Vaughan, p. 208; Billings, p. 249; Gunther, p. 307; Faulkner, p. 303.

² Gunther, pp. 304, 305; Berry, p. 309; Shields, p. 309. See also Coloring materials, p. 15.

³ Gunther, p. 306; Shields, pp. 309-311.

⁴ Wiley, pp. 14, 15, 213, 214, 586; York, pp. 209, 210, 213-215; Eaton, pp. 235, 236.

Wiley, pp. 213, 214; Moore, p. 217. See also York, pp. 213, 214.

⁵ York, pp. 209, 210, 215, 216; Stowe, p. 216, 217.

⁶ Moore, p. 220; York, pp. 210, 215; Eaton, p. 23.

⁷ Wiley, pp. 22, 23, 584; Jenkins, p. 451; Prescott, p. 196; Stewart, p. 79; Vaughan, p. 204; Berry, pp. 98, 99, 101.

⁸ Berry, pp. 98, 100; Vaughan, p. 204; Mitchell, pp. 132, 133.

¹⁰ Chittenden, pp. 424, 425.

CONDIMENTS.

Spices.—It appears from the testimony that nearly all spices are adulterated by being mixed with some inert and harmless substance called a filler, consisting sometimes of ground peanut and cocoanut shells, sometimes of colored flour, and sometimes of middlings or bran. One manufacturer, however, claims to make nothing but strictly pure spices, and another says only the goods he makes to order for dealers wanting goods at a low price are adulterated.¹ One case is mentioned in which ginger was adulterated with old tarred rope to give it a stringiness similar to that of real ginger.² In cloves, clove stems are used. These stems are said to have a slight flavor of cloves.³

Horse-radish is adulterated to a considerable extent with Indian turnips, which would be very unhealthful in large quantities.⁴

Mustard.—The principal adulterant for mustard is flour colored with turmeric; but plaster of paris has also been used.⁵

Pepper.—It is stated that ground pepper can seldom be obtained in a pure state. Among the adulterants used in it are mentioned cracker meal, ground corn and other refuse, a preparation of acids and charcoal, and for cayenne pepper, an acid preparation colored with an aniline dye. The adulterants are mixed in with the real pepper in the process of grinding.⁶

Salt.—Salt is sometimes mixed with a small amount of cornstarch to act as a lubricant and to make the salt run more freely from the cruet. This addition is sometimes stated on the label, but not always.⁷

Vinegar.—It seems that most of the vinegar sold in this country is what is known as low-wine vinegar, made by oxidizing the low wines of the distillery by allowing them to trickle over beech shavings and thus converting them into acetic acid, which is then artificially colored and perhaps a little of some solid substance added. This product is cheaper than either cider vinegar or malt vinegar. It is not claimed that any of these vinegars are injuriously adulterated, but only that they should be sold under their proper names.⁸

Alum in pickles.—Alum is used as a mordant in fixing the color of pickles, at least for the export trade.⁹

Tomato ketchup is said to be made from the cores and skins of tomatoes, dyed with a coal-tar dye, and preserved with salicylic or benzoic acid. The great majority of tomato ketchups contain some antiseptic, usually salicylic acid.¹⁰

Table oil.—About half the brands of olive oil examined by the Connecticut Agricultural Experiment Station were found to contain mixtures of cotton-seed oil and oil of sesame. It is said that practically all of the 6,000,000 gallons of cotton-seed oil produced in this country is sold either as "table oil," "salad oil," or "olive oil." Hundreds of barrels of cotton-seed oil sent to France and Italy are said to return to this country as olive oil, or mixed with olive oil. On the other hand, Italian witnesses testify that the adulteration of olive oil in Italy has been rendered difficult by a high duty on the cotton-seed oil, and that most of the adulteration takes place in the United States. Peanut oil is also said to be mixed with most of the olive oil exported from France. These practices are not criticised on the ground of healthfulness, but only on the ground of fraud.¹¹

¹ Wiley, pp. 17-19; Delafontaine, p. 229; Stewart, p. 78; Murray, pp. 66, 272.

² Mitchell, p. 119.

³ Murray, p. 69; Hallberg, p. 80.

⁴ Cliff, 156, 157.

⁵ Wiley, p. 17; Murray, p. 69; Duff, p. 497; Jenkins, p. 452.

⁶ Duff, p. 497; Jenkins, p. 452; Hallberg, p. 84; Wiley, p. 18.

⁷ Piffard, pp. 188, 190.

⁸ Wiley, pp. 24, 25, 234; Frear, pp. 523, 529; Eaton, 233, 234.

⁹ Prescott, p. 199; Cliff, pp. 155, 156.

¹⁰ Jenkins, pp. 452, 453; Wiley, p. 44.

¹¹ Wiley, p. 16; Rossati, pp. 446, 447; Zucca, pp. 435, 436; Furbay, p. 61.

TEA AND COFFEE.

Tea not commonly adulterated.—It is refreshing and rather surprising to read that tea is not commonly adulterated.¹ The duty of 10 cents a pound on tea is said to have had the effect of shutting out the lowest grades.² The chemist of the New York Produce Exchange, however, speaks of finding one very poor sample of tea, almost entirely lacking in theine and largely composed of stems; it had the appearance of having been once used and then dried. It also contained pods of seeds and some hair, which may have been accidental impurities.³

Facing and coloring of tea.—Tea is said to be increased in weight by the use of mineral substances, which also improve its appearance, and it is said that the green color is often secured artificially; even the finest teas seem often to be adulterated and colored in this way, and perhaps with injurious effects.⁴

Legal standard proposed.—It is recommended that a chemical standard be established for tea, and that it be required to come up to that standard.⁵

Coffee adulterations.—Several witnesses testify that the adulteration of coffee is very extensively carried on, especially in the case of ground coffee. Even unground coffees have been imitated by the manufacture of artificial berries, but these, it seems, are no longer found in the market. Chicory and crushed peas are the principal adulterants mentioned. The use of chicory is not objected to except on the ground of cheapness and fraud, and is even said to improve the flavor of the coffee. Coffee adulterated with chicory is therefore considered a permissible compound if properly labeled.⁶ The use of chicory and other adulterants in coffee is denied by two witnesses, their disuse being explained by the cheapness of real coffee in recent years.⁷

"Black-jack."—One of the principal forms of adulteration of coffee is said to be the inclusion of "black-jack," that being the trade name for overripe or dead beans which have become sour. These black beans are considered deleterious to health, their use being said to create in the consumer a perverted taste. Various other impurities are also said to be included in the poorer grades.⁸

Glazing and coloring of coffee.—The imperfections of coffee are covered up by the use of glazing and a mineral color to produce a shiny appearance and uniform coffee brown.⁹ The use of glazing is defended by one witness on the ground that it diminishes evaporation during roasting.¹⁰

Proposed legislation.—The establishment of coffee standards which should limit the proportion of damaged berries and other imperfections, or specify the minimum percentage of caffetannic acid, is strongly recommended by two gentlemen.¹¹ Others propose to prohibit entirely the importation of coffee containing black beans, and to prohibit the use of glazing.¹²

One witness believes that a duty on coffee would operate to exclude black-jack and other inferior grades;³ but, on the other hand, it is argued that a 5-cent duty did not have this effect when it was in force, and that the proposed 8-cent duty would not be any more effectual.¹³

¹ Jenkins, p. 452; Wiley, p. 18.

² Stewart, p. 77.

³ Duff, p. 498.

⁴ Wiley, p. 43; Duff, p. 499.

⁵ Hallberg, p. 84.

⁶ Wiley, pp. 17, 18; Mitchell, pp. 119, 120; Jenkins, pp. 451, 452; Vaughan, p. 205.

⁷ Stewart, p. 75; Jarvie, p. 429.

⁸ Stewart, pp. 73, 74, 76, 77; Jarvie, pp. 428, 429.

⁹ Mitchell, p. 121; Stewart, p. 75.

¹⁰ Duff, p. 499.

¹¹ Thompson, pp. 48, 49; Hallberg, p. 83.

¹² Stewart, pp. 74, 75; Mitchell, p. 121.

¹³ Thompson, p. 49.

ALCOHOLIC BEVERAGES.

Beer.—A very common modern practice in making beer is to use corn, rice, or a little raw barley, and sometimes grape sugar (glucose in a solid form) as substitutes for a portion of the malt. The grape sugar is used for the sake of cheapness, but the unmalted grains seem to be used as adjuncts to the malt to produce a light beer and improve its taste, an all-malt beer being said to be almost unsalable in this country; it contains an excess of albuminoids and is too strong and heavy for the popular taste.¹

There is a difference of opinion among the disinterested chemists as to the wholesomeness of beer made with unmalted cereals, one university professor agreeing with the majority of the brewers that their use has no injurious effects, while another chemist believes that beer made from rice and corn products is distinctly injurious.²

One of the brewers considers all-malt beer more wholesome and otherwise desirable than other kinds.³ Beer made with grape sugar is said to be more apt to produce digestive disturbances than pure malt beer;⁴ but one witness considers this substitution for malt less objectionable than the use of glucose for sugar, because the sugar in malt is converted into glucose in making beer.⁵

Hop substitutes do not seem to be used in this country, but when hops are cheap hop extracts are made to be used when hops shall have risen in price, and the meal contained in the hop cone is also used. No wholesome bitter has been found to take the place of hops, and the newspaper charge that aloes are used is discredited.⁶ There is, however, a great variation in the quality of the hops and other materials used, and consequently in the beer itself.⁷

Legal standard for beer.—Nearly all the brewers who express any opinion on the subject are in favor of national regulation and inspection of the brewing industry as preferable to regulation by the various States. They seem to be generally in favor of the establishment of a legal standard for beer by the United States Government, regulating either the amounts and proportions of ingredients used or the minimum original gravity.⁸ Three witnesses connected with the brewing industry, however, think it impracticable or undesirable to fix a legal standard for beer, partly on account of the variation in individual tastes.⁹

Malt extract.—The distinction between malt extract and beer is explained to be in the proportion of malt and alcohol. Malt extract contains a minute quantity of alcohol and a large quantity of malt, the only other ingredients being hops and other vegetable bitters which are beneficial to health. It is charged, however, that all brewers now sell beer as malt extract, and the importance of a national law fixing the standard of malt extract is suggested. The German and Austrian Governments compel the percentage of malt extract to be marked.¹⁰

Blended liquors.—Three kinds of blending in the manufacture of liquors are distinguished: (1) Wines from different vineyards and of different flavors are blended to make a uniform product from year to year; (2) strictly artificial liquors are manufactured, as in the imitation of claret by a combination of alcohol,

¹ Wiley, p. 19; Wyatt, pp. 401, 402; Busch, pp. 487, 493; Oehne, p. 295; Fecker, p. 299; Thomann, pp. 351-356; Liebmann, pp. 394-396; Kruesler, pp. 377, 378; Wigan, pp. 375, 376.

² Chittenden, p. 424; Piffard, pp. 188, 190.

³ Zeltner, pp. 456-458.

⁴ Wiley, pp. 19-21.

⁵ Hallberg, p. 82.

⁶ Schwartz, pp. 371, 374. Wyatt, pp. 403, 411.

⁷ Wiley, 21; Fecker, p. 299; Oehne, p. 297.

⁸ Pabst, p. 311; Fecker, p. 298; Plantz, p. 301; Oehne, p. 293; O'Reilly, p. 462; Zeltner, pp. 456, 459; Hupfel, p. 380; Hachemeister, p. 416; Lippe, pp. 381-384, 393; Brown, pp. 388, 389.

⁹ Busch, pp. 491-493; Schwartz, p. 374; Wackenhuth, p. 413.

¹⁰ Elsner, pp. 432, 433.

sugar, glycerin, tannin, essential oil, an artificial flavor, and a coloring matter; (3) but the most common form of blending is the process which is made to take the place of aging in the case of distilled liquors. While the first form of blending is considered perfectly legitimate, the other two forms are regarded as objectionable as being both fraudulent and injurious to health, the artificial products being less wholesome than the natural ones, and in some cases positively injurious.¹

Fabrication and adulteration of wines.—Dr. Wiley has examined samples of wine purporting to be sherry, port, and sweet catawba, which contained no fermented grape juice at all, but were made of alcohol, commercial glucose, a little tannin, and aniline dyes in such quantities that several tufts of wool were beautifully dyed with the coloring material taken from one of the samples. Another common form of the sophistication of wine is by the addition of alcohol. The president of the Brotherhood Wine Company believes that there is very little adulteration or mixing of American wines, and another witness confirms this statement in some degree by saying that there is more adulteration of liquors in Europe than in America, artificial wines which could not lawfully be sold in the country of origin being exported to America. In the wine-producing States of Germany the manufacture of artificial wine and also of second wine (by the addition of chemicals and sugar to the pressed grapes) is permitted, but the product must be sold under its true name. The amount of materials which may be added to wine is limited by law. The Italian laws on this subject are said to be very strict and effective in preventing the adulteration of wine, but Italian wines have been adulterated to some extent after importation to this country.²

Artificially carbonated champagne.—The adulteration of true champagne, which is defined to be a sparkling wine fermented in the bottle during a period of from 2 to 4 years, is thought to be impracticable, but the manufacture of so-called champagne by the artificial carbonation of light-colored still wines is a very common practice.³ The witnesses who are most closely connected with the artificial carbonation of wines state that the gas used is a pure natural gas, and claim that their product is more wholesome and otherwise desirable than champagne made by the original process.⁴ On the other hand, artificially carbonated wine seems to disagree with some persons, and it is objected to also on the ground that its production tends to discredit all American champagnes.⁵ The cost of producing this artificially carbonated champagne is estimated at from 25 to 85 per cent of the cost of producing champagne of the original kind.⁶ Artificially carbonated champagnes contain much less alcohol and have a shorter period of effervescence than the natural champagnes, but American champagne produced by fermentation in the bottle is considered by experts to be as fine as any in the world, if not superior to any other.⁷

Whisky and brandy.—In the aging of whisky the raw whisky is put into casks of oak, usually slightly charred on the inside. The whisky extracts from the wood a little tannin and coloring matter. The alcohols are oxidized, forming volatile ethers, which lend a pleasant aroma to the liquor. By this process the raw whisky is said to be transformed in the course of years into a fragrant, palatable, and soothing drink. This aging of liquors, however, is an expensive process, on account of the great length of time required, and an artificial process has, therefore, been invented for producing a similar effect in a short time. For

¹ Wiley, pp. 53-56; O'Reilly, p. 461.

² Wiley, pp. 53, 54, 586; Wyatt, pp. 410, 411; Emerson, p. 507; Hochstadter, p. 470; Eitel, p. 291; Rosatti, pp. 445, 446; Zucca, p. 485.

³ Emerson, pp. 501-507; Wheeler, p. 521.

⁴ Ripen, pp. 569-579; Minor, pp. 573-576; Werner, p. 577.

⁵ Bauder, pp. 514, 515; Emerson, p. 508.

⁶ Ripen, p. 572; Cook, p. 519.

⁷ Wiley, pp. 589, 590; Emerson, pp. 509-512; Harrison, pp. 591, 592; Hildreth, pp. 510-512.

this purpose ethyl alcohol, or cologne spirits, is diluted to the usual strength of whisky, colored brown or reddish with burnt sugar, and flavored with artificial ethers to resemble either whisky or brandy, as the case may be. It is said that considerably more than half the whisky in this country is compounded in this way, though a little old whisky is usually mixed with the new.

The manufacture of the whisky and brandy essences is carried on by the same manufacturers who make flavoring extracts for soda water. It is regarded as a legitimate business in itself, but the product is used by the blenders of liquor for fraudulent purposes. It is very difficult to distinguish liquors compounded in this way from the genuine liquors, on account of the practice of blending, and because the product seems to be chemically about the same in either case, though the physiological effects are different.¹ It is proposed that the compounded liquors be required to be labeled as such.²

The most common form of adulteration of whisky, aside from this artificial aging, appears to be the addition of water, which is commonly practiced in saloons of the lower grade. Tannin has also been found in some of these diluted whiskies, but its presence may have been due to keeping the liquor in bad casks.³

False labels.—The abuse most complained of in connection with the manufacture and sale of liquors is fraudulent or misleading labeling. The bottlers of foreign ales are frequently troubled by having the foreign labels imitated by photographic or other facsimiles, and also by the refilling of genuine bottles, for which it is more difficult to obtain conviction.⁴

Complaint is made that artificially carbonated champagne is not labeled in a way to indicate the method of manufacture, but is sold for true champagne at about double the price of carbonated champagne, besides being generally labeled to give the impression that it is of French or Italian origin.⁵ Two manufacturers of carbonated champagne testify that their firms use no foreign labels, but place the firm names on the bottles. The majority of champagne makers, however, are believed to use labels containing French words to give the impression of foreign origin. Some imported champagne is also said to be artificially carbonated and falsely labeled with the names of well-known makers.⁶

A very large proportion of the still wines made in America are said to be sold under fraudulent foreign labels, even the best of the American wines being sold as foreign wines. Wine sold in quantities is sometimes labeled to suit the purchaser.⁷ The president of one wine company, however, states that his company uses American labels, and does not imitate any foreign or domestic wine.⁸

A common abuse is the sale of domestic spirits, largely the product of illicit distilleries, under counterfeit labels, usually as imported whiskies, brandies, or wines. There are said to be comparatively few saloons which do not refill foreign bottles in this fraudulent manner. On the assumption that no tax is paid on the domestic spirits thus sold under foreign brands, it is estimated that the Government loses \$6,000,000 a year in customs duties; though in some cases internal-revenue taxes are paid on the whisky used in this fraudulent way, so that the Government loses only the difference between the internal revenue and the import duty. One wholesale liquor dealer says this estimate can not be substantiated, but another witness say it is generally believed to be an underestimate.⁹ One witness showed the committee 33 fraudulent labels, all made in imitation

¹ Willey, pp. 54-57; Chittenden, p. 424.

² Willey, p. 57.

³ Chittenden, p. 423.

⁴ Broun, pp. 399, 400; Roche, p. 414.

⁵ Wheeler, p. 521.

⁶ Ripen, pp. 572, 573, 577; Werner, p. 577.

⁷ Emerson, p. 507; Eitel, pp. 290, 291; Willey, pp. 40, 41.

⁸ Hildreth, pp. 510, 512.

⁹ Sadler, pp. 396-398; Hochstadter, p. 467; Crilly, p. 473.

of the labels of one brand of whisky, the proprietors of which have been active in prosecuting and giving publicity to those infringements.¹ As remedies for these frauds, it is recommended that a penalty of fine and imprisonment be imposed for the sale of liquors under misleading brands, and that the ingredients be stated on the labels, though without giving the entire formula.²

Cordials and liqueurs, which are extensively manufactured in the United States, are said to be put up under foreign names, except in the case of one establishment which uses its own name.³

Some of the makers of wines and cordials desire legislation requiring all labels to show the true place of origin of the wine, whether champagne is genuine or artificially carbonated, and in the case of cordials, whether they are diluted or not, made from herbs and fruits or otherwise, and artificially preserved or not.⁴ The makers of carbonated champagne, however, object to the use of the words "artificially carbonated," or other similar expressions, lest people should think the champagne artificial in the sense of being medicated; and it is suggested that if champagne made by the old process were required to be labeled "fermented in the bottle," the effect would probably be to injure both kinds of American champagne and increase the sale of foreign brands.⁵ A distinction is also made between the use of names which have become generic, though originally indicating the place of origin, and labels intended to deceive the purchaser.⁶

Physiological effect of alcohol.—A leading authority on physiological chemistry states that a certain quantity of alcohol, like an after-dinner cup of coffee or a proper amount of salt, facilitates digestion, but that in large quantities it produces an inflammation of the mucous membrane of the stomach.⁷

FLAVORING EXTRACTS AND SODA-WATER SIRUPS.

Vanilla and lemon extracts.—Most of the flavoring extracts on the market are said to be artificial products made with chemical ethers. Vanilla extracts are made of an artificial substance called vanillin, obtained from oil of cloves, or of cumarin from the tonka bean. Vanillin is considered a valuable flavoring substance, but cumarin has marked poisonous effects when used in large quantities; yet it is said to be present in nearly all the cheaper grades of extracts. For coloring matter, brown sugar or prune juice is used. In the cheaper lemon extracts there is a very slight amount of oil of lemon, the flavor and odor being due chiefly to an extract of ribbon grass.⁸

Soda-water sirups.—Especially in the sirups used for flavoring soda water is the use of artificial compounds practiced. It is estimated that the chances are five to one against getting a fruit sirup at a soda fountain. The artificial sirups are more convenient to handle than the fruit flavors and will keep indefinitely. They are not considered injurious to health in minute quantities, but it is complained that their use is a fraud and an injury to the fruit interests. Saccharin is sometimes used in place of sugar for sweetening, and aniline dyes are used; perhaps not in sufficient quantities to make a single glass of soda water injurious to health, though one witness has found enough dye in a single glass to give a brilliant color to a piece of flannel 4 inches square. It is charged that a variety of substances said to be poisonous are used in coloring soda-water sirups.

¹ O'Reilly, p. 465.

² Sadler, p. 397; O'Reilly, pp. 461, 462.

³ O'Reilly, p. 464.

⁴ Emerson, pp. 503, 507, 508; Wheeler, p. 522; Hildreth, p. 512; Cook, p. 520; Rheinstrom, p. 427.

⁵ Werner, p. 579; Ripen, p. 578.

⁶ Hochstadter, pp. 469-472.

⁷ Chittenden, pp. 420, 421.

⁸ Vaughan, p. 204; Mitchell, pp. 118, 127-131.

Flavors and colors in other temperance drinks.—Temperance drinks in general are said to be extensively colored with aniline dyes and flavored with artificial flavors.

Legal remedies.—The labeling of artificial sirups as such is demanded on behalf of the fruit interests. In the administration of the Wisconsin food law, artificial flavors are not permitted as a rule, except where the genuine extract can not be commercially made.¹

COLORING MATERIALS.

In general.—The use of coloring materials to improve the appearance of foods is said to be of physiological importance, in that the sight of attractive food not only makes the mouth water, but also increases the activity of the stomach, liver, and pancreas. It is said, however, that the general object of coloring matter is to enable an inferior food to be sold in place of a better one.²

Mordants in vegetables.—In the case of canned vegetables the green color is fixed by the use of mineral substances, principally zinc and copper compounds, which are poisonous, but are used in such small quantities that they are not harmful to most healthy stomachs; though a weak digestion may be upset by a very small amount.³

Aniline dyes.—The aniline oil used as a coloring matter is obtained from coal tar, and it has a variety of hues, so that it is said to be taking the place of vegetable coloring matters not only in butter and its imitations, but also in confectionery, jellies, preserves, and wines.⁴

Some of the aniline colors, as methylene blue, are usually harmless; while others, as vermilion red, are said to be slightly poisonous. Some of the aniline colors contain arsenic as an accidental impurity, but the better grades are not made by the arsenic process and are guaranteed to be free from arsenic.⁵

Colors in confectionery.—The use of coloring matter is considered of especial importance in confectionery, the manufacturers of which pay considerable attention to the production of pleasing tints. Poisonous coloring matters, such as chromate of lead, have been used for this purpose, but since publicity has been given to the matter the use of poisonous colors has been almost or quite discontinued, and their place taken by aniline dyes, or in the great majority of cases by harmless vegetable substances.⁶

Proposed legislation.—It is proposed by some of the expert witnesses that the use of coloring matters be either prohibited altogether or at least declared on the label.⁷ Another suggestion is that the Government should specify the coloring matters which may be used, especially in butter and its substitutes and in confectionery.⁸

The use of injurious coloring materials, including, perhaps, aniline dyes in confectionery, and especially copper and zinc colors in canned vegetables, is thought by some to require prohibition. Dr. Wiley says that when chemicals are used to fix the chlorophyll in vegetables, the fact should be stamped upon the package, as with many people the least amount of these chemicals upsets the digestion.⁹

¹ Wiley, pp. 57, 58, 585; Jackson, pp. 473-475; Duff, p. 498; Jenkins, p. 453; Mitchell, p. 134; Edwards, p. 238.

² Wiley, p. 42; Vaughan, p. 203; Prescott, p. 199.

³ Wiley, p. 42.

⁴ Mitchell, p. 115; Delafontaine, p. 229; Piffard, p. 191.

⁵ Billings, p. 249; Piffard, pp. 191, 192; Mitchell, p. 181.

⁶ Wiley, pp. 30, 31.

⁷ Prescott, p. 199; Mitchell, p. 120; Piffard, p. 188.

⁸ Vaughan, p. 203; Prescott, p. 200.

⁹ Wiley, pp. 31, 42; Billings, p. 249; Chittenden, pp. 422, 425.

PRESERVATIVES.

Various modes of preserving food.—Decay in organic substances, which was formerly supposed to be produced by oxidation, is now known to be due to the working of decomposing germs or ferments. Anything which either kills these germs or suspends their action, therefore, acts as a preservative. Four general methods of preserving foods are enumerated: (1) Sterilization by heat, which kills the germs but not the spores, so that two applications of heat are required for safety; (2) refrigeration, which suspends the activity of the ferments for the time being, as long as the low temperature continues; (3) drying; (4) the addition of some antiseptic substance which paralyzes the ferments. There are two general classes of antiseptics: The first class consists of such substances as are themselves foods and are absorbed as the preserved food is digested, such as alcohol, sugar, and vinegar; salt and certain spices are also classified with these preservatives which are beneficial rather than harmful in ordinary quantities, because they promote the absorption of food. The second class of antiseptics consists of substances which do not enter into the animal economy.¹ Among those most commonly used as preservatives are salicylic acid, borax and other boron compounds, and formaldehyde or formalin; saccharin, sodium fluoride, and various sulphites and other chemicals are also used to a greater or less extent.

Physiological effects of antiseptics.—Any agent which paralyzes the ferments which produce decay may be expected to interfere to a greater or less extent with digestion by lessening the activity of the ferments by which digestion is accomplished; and there are many authorities who consider that antiseptics are for this reason necessarily injurious to the health.² Among the other charges which are brought against antiseptics are that they encourage the sale and use of inferior food, or food which may be upon the point of turning sour, by improving its apparent but not its real quality, and that their use leads to carelessness in the application of other means or preservation, such as sterilization. It is also remarked that while only a small amount of any antiseptic is taken in any one food, the use of preservatives is so general that in the aggregate a considerable quantity may be taken into the stomach.³

It is not denied, therefore, that the ideal food is that which is fresh and requires no preservation; but under actual modern conditions the use of antiseptics is regarded as necessary, and more desirable and hygienic than the use of food in which decomposition or the generation of ptomaines or other poisonous substances has begun. Even where refrigeration is practicable, its superiority to the use of antiseptics is questioned.⁴ The outcry against the use of antiseptics is attributed to a prejudice, resulting, perhaps, from their improper use in milk, which should be kept absolutely pure.⁵ A distinction is made between cumulative poisons, such as lead or mercury, and the substances ordinarily used as preservatives, which are thought to be practically harmless in quantities which do not produce immediate physiological effects.⁶ It is even maintained by some physiologists that antiseptics in small quantities do not necessarily interfere with digestion, and that salt and boracic acid at least may even hasten the digestive processes.⁷

The differences of opinion existing on this subject seem to be due partly to the scarcity of competent physiological chemists and to the consequent lack of definite experimental knowledge. Professor Atwater and Professor Chittenden

¹ Wiley, pp. 43, 44; Lewis, pp. 33, 34.

² Mitchell, pp. 111, 112; Wiley, pp. 45, 46; Prescott, pp. 195, 196.

³ Prescott, pp. 195, 201; Vaughan, pp. 203, 204; Mitchell, 113, 116, 183.

⁴ Haines, pp. 283, 284; Edwards, p. 286; Billings, pp. 248, 249.

⁵ Delafontaine, p. 232; Knight, p. 251.

⁶ Eaton, p. 255.

⁷ Chittenden, p. 419, 421; Billings, p. 246; Allport, p. 257.

are mentioned as eminent and experienced men in this line of work, and a younger school is said to be coming forward, but the members of it are unfortunately few.¹ Moreover, the whole question is complicated by the differences existing in individuals, which make it safe for one person to use an amount of a given substance which in another individual would act as a more or less violent poison. Each individual is able to determine more or less definitely by experience what foods do or do not agree with him, but the use of preservatives and other unsuspected adulterations without notice to the consumer makes this test untrustworthy.²

Proposed legislation.—It is thought that this difficulty would be overcome by requiring plain labels on all preserved foods, giving notice as to what preservative is used, and that this should be done at least in the case of antiseptics which are not evident to the taste or smell.³ The only objection to this proposed requirement comes from a manufacturer, who argues that the poorer classes would be afraid to use foods so labeled, or backward in buying them, and that great damage to the country in general and the manufacturing industries in particular would result. He is in favor of prohibiting deleterious substances, however.⁴

Attention is called to the prohibition of certain preservatives, such as saccharin and salicylic acid, in European countries, and to the Wisconsin law forbidding the use of boracic acid in milk.⁵ Certain experts are in favor of prohibiting salicylic acid and perhaps some other antiseptics;⁶ and it is suggested that a board of high medical authorities be constituted to pass upon the wholesomeness of the antiseptics used.⁷

Formaldehyde.—Formaldehyde, or formalin, which is made from wood alcohol by extracting the hydrogen, is used extensively in weak solutions to prevent the souring of milk. It is sometimes sold under such fanciful names as "milk sweet" and "freezine," and at prices many times the cost of the material. It is also used in some cases for preserving fruit, liquors, and other foods.⁸ Formaldehyde, or formic aldehyde, is said to be an active poison and to interfere with digestion in the same manner as other antiseptics. It is therefore considered injurious, or at least a doubtful agent which it is well to avoid, even in weak solutions.⁹ On the other hand, it is thought by one chemist and by a manufacturer of preservatives to be harmless in the very diluted form in which it is used in milk, and even beneficial in cases of sour stomach and cholera infantum.¹⁰

Borax and boracic acid.—Borax and boracic acid are used as preservatives in milk, butter, and meat. It is charged that their use in milk is usually for the purpose of covering up inexcusable shiftlessness in handling the milk.¹¹ They are used to some extent as preservatives in butter intended for export to England, the English importers demanding a preservative in butter, perhaps because of the conservatism which has prevented the general use of refrigerators in that country. Butter sent to England from Australasia, Argentina, and France is said to be universally preserved with boron compounds, and their more general use in American butter intended for export is strongly urged as the only means of competing successfully with other butter-producing countries.¹² On the other hand,

¹ Austen, p. 537; Delafontaine, p. 233.

² Jenkins, pp. 449, 454.

³ Wiley, pp. 44, 53, 184; Jenkins, p. 454; Prescott, p. 195; Billings, p. 247.

⁴ Heller, pp. 181, 182.

⁵ Wiley, pp. 44, 52, 53.

⁶ Prescott, 196; Vaughan, p. 204.

⁷ Hallberg, p. 81; Billings, p. 247; Thurber, p. 582.

⁸ Wiley, pp. 45, 171; Mitchell, p. 112; Heller, p. 186.

⁹ Piffard, p. 191; Prescott, p. 196; Billings, p. 248; Allport, p. 260; Edwards, p. 286.

¹⁰ Mitchell, p. 112; Heller, pp. 171-186.

¹¹ Adams, p. 209.

¹² Knight, pp. 168-170, 243, 244, 250-252; Henshaw, p. 266.

it is pointed out that butter containing boracic acid is not admitted into any European country except Great Britain and France, nor into several of the South American countries, and that the use of boracic acid would therefore destroy the sale of American butter in many foreign countries. It is also said to be a poor preservative, and unnecessary in butter.¹

A few witnesses consider boron compounds injurious, and one of them submits an extract from a medical journal describing two distinct forms of poisoning from boric or boracic acid, one of which may occur as a result of its continued use in food.² The preponderance of evidence, however, is to the effect that boron preservatives are harmless as ordinarily used.³

The principal use of borax as a meat preservative is on meats for export, though it has been found in considerable quantity in sausages, and sometimes in chickens shipped long distances in this country. Hams and other meats intended for export are simply rolled in borax after being cured or partly cured with salt or saltpeter. The borax is said not to penetrate to any great extent into the meat, and to be brushed off after the meat reaches its destination. The application of borax in this manner is regarded as necessary by exporters in order to keep the meat in good condition without the use of an amount of salt which would render it unpalatable.⁴

Other methods of preserving meat.—The principal other meat preservatives mentioned are sulphur, sodium sulphite, which sometimes masquerades as "freezem" or "new method meat preserver," salt, and saltpeter. The object of smoking meat is said to be to give it a flavor and color, not to cure it.⁵ The use of sulphur is recommended as next in value to treatment with boracic acid, and preferable to the use of either formalin, salicylic acid, carbolic acid, or corrosive sublimate.⁶ Sodium sulphite is claimed by a manufacturer of preservatives to be absolutely healthful in small quantities, but other witnesses appear to regard its use as undesirable.⁷ Salt is considered salutary in ordinary amounts, but both salt and saltpeter have been found to be injurious and even dangerous to life in excessive amounts. Saltpeter is regarded as more deleterious to health than either common salt, borax, or bicarbonate of soda, having a tendency to produce degeneration of muscle and an injurious effect upon the kidneys.⁸ Refrigeration is recommended as an excellent means of preserving meat, when an even temperature can be maintained and the meat consumed as soon as it is taken out of cold storage; but attention is called to the danger of tainting after removal from the refrigerator.⁹

Salicylic acid.—Salicylic acid, which is said to be used more than any other antiseptic, is considered by many authorities to be injurious even in small quantities, at least to some individuals. It is thought to be injurious to the organs of secretion and to the mucous membrane; it is also said to disturb the digestion, depress the heart and the respiration, congest the lungs, and irritate the kidneys. It is considered capable of producing convulsions in infants, and cases are reported in which death was apparently due to the depression of the heart caused by its use.¹⁰ One authority, however, considers it less objectionable than other antiseptic

¹ North, pp. 476-478; Delafontaine, p. 233.

² Duncan, pp. 47, 48; Piffard, p. 191; Prescott, p. 200; Adams, p. 209.

³ Delafontaine, p. 233; Stringfield, p. 282; Chittenden, pp. 421, 422; Billings, pp. 244-246, 250; Allport, pp. 256-259, 260; North, p. 477; Henrotin, pp. 264, 265; de Schweinitz, p. 614; James, pp. 267, 268-269, 279; Edwards, pp. 287, 289; Haines, pp. 284, 285.

⁴ Edwards, pp. 288, 289; Jenkins, p. 450; Lunham, pp. 239-242; Ellsworth, pp. 253-255.

⁵ Mitchell, pp. 113, 114; Heller, pp. 179, 180.

⁶ Allport, p. 260.

⁷ Heller, p. 178; Mitchell, p. 183; Prescott, p. 200.

⁸ Billings, pp. 245, 247; Haines, p. 284; Edwards, pp. 286, 287; Heller, p. 179.

⁹ Allport, pp. 260, 261.

¹⁰ James, p. 268; Prescott, pp. 195, 196; Chittenden, pp. 421, 425; Edwards, p. 286; Vaughan, p. 204; Stringfield, p. 282; Heller, p. 178; Thurber, pp. 581, 582.

tics, while two or three others think it harmless in the very small quantities ordinarily used.¹ Salicylic acid is often used in beer, wine, and other beverages, including grape juice and cider;² but cider is said to be preserved chiefly with fluoride of ammonia or soda, which on decomposition forms hydrofluoric acid, the only acid which is too powerful to be kept in glass bottles.³ A compound of salicylic acid, salicylate of soda, and phosphate of soda is made for use in canning fruit, and furnished to owners of orchards, who use it in putting up their fruits without knowing its composition.⁴

Preservatives in beer.—Many brewers and others testify that antiseptics are not now generally used in beer, having been rendered unnecessary by the use of pasteurization and ice machines.⁵ Several witnesses, however, testify that salicylic acid, bisulphite of lime, and other preservatives are used in beer for export and for distant shipment.⁶ Beer imported from foreign countries is also said to contain preservatives.⁷ One importer, however, asserts that the beer he gets from Munich contains nothing but malt and hops, and similar claims are made for certain ales and stouts from England and Ireland.⁸ Of 15 samples of beer bought in New York, at least half of which were foreign, 4 only were found to contain salicylic acid, 2 of the 4 being foreign and 2 domestic beers. It is thought that the use of salicylic acid has been largely discontinued since attention was called to its harmfulness in the Agricultural Department's report on beverages.⁹

DRUGS.

The committee took very little testimony on the subject of drugs, but some testimony was given to the effect that the adulteration of drugs had been carried on to a great extent in this country. This seems usually to have been done for the purpose of cheapening them by reducing the strength; but even this kind of adulteration is condemned as dangerous in the case of drugs. Others are said to be not properly purified. Such commonly used articles as household ammonia, root beer, so-called cherry phosphate, etc., are said to be the kind of drugs most adulterated. Powdered coal dust is said to be sold for black antimony almost exclusively. Bromo seltzer is said to be made with acetanilide, a poisonous substance, in place of bromide of potassium.¹⁰

Two witnesses remark that the Government has already done a great deal to prevent the importation of adulterated drugs,¹¹ and the hope is expressed that something will be done in the case of drugs of home manufacture. It is suggested that when proprietary articles contain substances which are poisonous in an overdose purchasers should be warned.¹²

GENERAL DESIRE FOR A NATIONAL FOOD LAW.

Many of the witnesses are convinced of the insufficiency of State legislation to regulate the purity of food. The chief objection, especially from the standpoint

¹ Tucker, p. 435; Delafontaine, p. 232; Billings, p. 248; Schwartz, pp. 369, 372, 373.

² Wiley, pp. 44, 45; Billings, p. 248.

³ Hallberg, p. 85.

⁴ Mitchell, pp. 115, 116.

⁵ Thomann, pp. 356-359; Pabst, p. 312; Oehne, pp. 294, 296; Fecker, p. 298; Plautz, pp. 300, 301; La Touche, pp. 544-546; Busch, pp. 488, 489; Evans, p. 417; Hachemeister, p. 416; Roche, p. 414; Wyatt, pp. 406, 407; Bauer, p. 390; Lippe, pp. 381, 384, 385; Kruesler, pp. 377, 378; Hupfel, p. 379.

⁶ Wigan, pp. 375, 376; Brown, p. 386; Wackenbuth, p. 412; Mitchell, p. 116; Schwartz, pp. 367, 368, 369, 372; Zeltner, p. 456.

⁷ Wyatt, p. 407; Plautz, p. 300; Thomann, p. 358.

⁸ Eitel, p. 290; La Touche, pp. 544-546; Roche, p. 414.

⁹ Wiley, pp. 45, 584.

¹⁰ Hallberg, pp. 84-86; Piffard, pp. 194, 195; Mitchell, p. 124.

¹¹ Hallberg, p. 83; Piffard, p. 93.

¹² Frear, p. 484.

of the manufacturer, to leaving the matter in the hands of State governments is the lack of uniformity in State laws, which makes necessary different kinds of labels according to the State to which the goods are to be shipped. It is also urged that the State laws are insufficient from the lack of the appropriations necessary to enforce them, and through the lack of sufficient knowledge and efficiency on the part of the officials charged with their enforcement. Moreover, it is pointed out that the State laws are enforced mainly against the retailers, who may themselves be victims of deception, and that goods brought from another State and sold in the original packages can not be reached by State legislation.¹

There seems, therefore, to be a general agreement both among the manufacturers and among others who express any opinion on the subject that national regulation is necessary or desirable. In the most common form which the proposals for legislation take, the principal thing sought for is the requirement that foods shall be honestly labeled and sold for what they really are. Manufacturers would apparently be willing to label their goods properly if their competitors were required to do the same.² In the case of injurious substances, however, and in the case of compounds containing materials no one would knowingly use, correct labeling is considered insufficient and prohibition necessary.³ A number of authorities favor the establishment of a national commission or board of health, with power to fix regular standards for food products, and perhaps guarantee the quality of products coming up to the standard required,⁴ though two witnesses consider it undesirable for the Government to guarantee the purity or quality of particular food products.⁵ It is suggested that the proposed commission should be either under a department of commerce or under the existing Department of Agriculture. The Brosius bill, which is patterned after the English law and is said to be essentially the plan approved by the agricultural chemists in 1897 and in a modified form by the National Pure Food and Drug Congress in 1898, is advocated by one witness on the grounds that it avoids the tax feature and places the administration in offices already established, and that general legislation is preferable to piecemeal regulations.⁶

It is doubtful how far the National Government has power to go in regulating food products, but it is pointed out that it can at least do much toward preserving the reputation of American goods abroad, prevent the importation of misbranded and adulterated goods, legislate generally so far as concerns the Territories, the District of Columbia, and foods sent from one State to another, and thus establish a basis or model for more uniform State legislation.⁷

¹ Stewart, p. 73; Scully, pp. 93, 94; Piffard, pp. 193, 194; Tucker, p. 433; Frear, p. 529; Mitchell, p. 123.

² Wiley, pp. 53, 587, 588; Monred, p. 65; Hanney, pp. 59, 60; Furbay, p. 62; Wise, p. 627; Delafontaine, p. 281; Berry, p. 97; Mitchell, p. 111; Hobbs, p. 496; Piffard, pp. 187, 192; Stewart, p. 79; Rossati, p. 448; Scully, pp. 93, 94.

³ Thurber, pp. 581, 582; Piffard, p. 191; Mitchell, pp. 118, 124.

⁴ Lewis, pp. 36-39; Hallberg, pp. 80, 81, 87; Chittenden, pp. 418, 419, 422, 426; Tucker, pp. 436, 438, 439; Piffard, pp. 187, 188; Vaughan, pp. 206, 207; Wiley, p. 39; Billings, p. 247.

⁵ Mitchell, pp. 124, 131, 132; Tucker, p. 437.

⁶ Frear, pp. 528, 527.

⁷ Mitchell, p. 122; Adams, p. 207; Frear, pp. 529, 530.

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TOPICAL DIGEST OF EVIDENCE.

I. PURE AND IMPURE FOODS.

A. Pure foods.—Mr. HANNEY says that when he first came to this country, twelve or thirteen years before the date of his testimony (1899), he traveled all around the United States in search of pure foods, and discovered that English, German, and French manufacturers were well known to the people and that there were scarcely any American goods for sale. He mentions especially Cross & Blackwell, the Dundee Marmalade Company, Black & Son, and French manufacturers of peas, mushrooms, and asparagus. There was no such thing known in this country as high-grade asparagus or peas. There were one or two manufacturers in New York State putting up these articles in a small way, but there were none so good as the English, French, and Germans put up. There are now about 30 manufacturers in this country even better than the English, French, and German companies. Formerly the English, French, and German goods were the only ones that were known and truthfully labeled, though a few small American firms produced honest goods. (63, 64.)

Mr. FURBAY, connected with the Hazel Pure Food Company, of Franklin Park, Ill., feels that there is unfair competition with adulterated goods. He says very few business men in Chicago appreciate the pure-food question from a commercial standpoint, but that his company acts upon the principle that there is more money to be made out of pure foods carefully prepared and honestly labeled than out of adulterated products. He has striven to improve the health and welfare of the company's patrons by giving absolutely pure articles in competition with cheaper grades. He thinks his company can produce the goods and sell them at a larger profit even when some one else is selling goods containing illegitimate adulterations. He feels that all goods ought to be honestly labeled, but not always with the formula. He defines pure food as food containing no deleterious substance, and sold for what it is. Flour mixed with corn, if it is so stated, is a pure product; if it contains alum it is impure. (60, 61.)

Mr. Furbay says that Cross & Blackwell and other English firms, selling pure food properly labeled, drove American manufacturers out of the American market, although the Americans were producing the goods more cheaply. American manufacturers are now introducing a food of higher grade than can be imported. He accounts for the change in the character of American goods by saying that we have advanced in our general national character, and honesty has been found to be the best policy. The Hazel Pure Food Company wants to put out honest articles properly labeled because there is more money in it. Witness thinks business men will all come to see that. He supposes that the goods of Cross & Blackwell, and some other English manufacturers of preserves and marmalade, still top the market, because they are widely advertised and better known than others now placed on the market by such companies as his own. (62, 63.)

Mr. HANES, a salesman for the Battle Creek Health Food Company, says that most of the products of his company are ready cooked. He believes that no preservatives whatever are used, not even salt. Some of the foods consist of preparations of wheat and other grains, and others of nuts, either by themselves or combined with cereals and fruits. A full line of crackers and biscuits is offered in which no baking powder, soda, or lard is used. No animal fats are employed. A peanut butter is used, made by roasting and grinding peanuts. (261-264.)

Mr. BERRY says perfectly sound fresh fruit is bought in the market and put up in hermetically sealed cans. The time to buy the fruit is when there is a flood in the market, and the best fruits can be bought at a nominal price. (101.)

B. Extent of adulteration.—Dr. WILEY says that he has been reported by the newspapers as having stated that 95 per cent of all foods in the United States

were adulterated. What he did say was that probably 95 per cent of food products had been adulterated at some time or other in some country or other. (585.)

Dr. Wiley testifies that adulteration with materials deleterious to health is by no means so extensive as merely fraudulent adulteration. There is scarcely any article of human food which has not at some time in some country been adulterated, but the actual amount of adulteration in the market is very small. Of 100 food articles bought at random, other than ground spices or ground coffee, scarcely 5 per cent would be adulterated. Adulterations injurious to health are confined mostly to (1) coloring materials and (2) preservatives. (41.)

Professor FREAR, of the Pennsylvania Agricultural College, says that in his investigations he has found very little adulteration of food which could be distinctly asserted to be injurious to health in the quantities in which the materials are commonly used, unless it be from the cumulative effects that might result from the continuous use of such materials. Continuous use might produce positive injury, particularly in the case of persons with rather weak digestion. He refers particularly to the use of coloring matters of mineral origin and coal-tar colors. (481.)

Professor JENKINS, of the Connecticut agricultural station, says that food adulteration in Connecticut has increased with competition and the demand for cheaper goods and the necessity of utilizing waste products. Coconut shells and the hulls of peas are mixed with spices, and prune stones with coffee. The adulteration which is obviously injurious to health has, however, decreased, on account of the increased activity of the health officers and inspectors. Existing adulteration is chiefly injurious in demoralizing honest trade and working frauds on the consumer. In the four years' experience of the Connecticut station only a single adulterant has been found which is distinctly a poison. That is Marsh's yellow, a dye which is used in very small amounts in the adulteration of mustard. (449.)

Mr. MURRAY admits that the term "commercial" usually means something adulterated. (71.)

C. Injurious effects of fraudulent adulterations.—Prof. VICTOR C. VAUGHAN, dean of the medical faculty of the University of Michigan, says it is quite impossible to separate those adulterations directly detrimental to health from those which are simply pecuniary frauds, because an adulteration which may be undertaken for pecuniary gain will often injure health. (202.)

Professor PRESCOTT's opinion is that the substitution of one harmless food for another unknown to the consumer is a sanitary offense, for what is a wholesome food for one man is not wholesome for another. From the extreme complexity of the digestive processes and the highly organized condition of the human body, it becomes impossible to determine by chemical analysis precisely what food would be the most favorable to digestion and harmless for a given individual. People find out by experience what food is beneficial to them, but if substitutions unknown to the consumer are permitted that experience goes for nothing. (197, 198.)

D. Various kinds of adulteration distinguished.—1. *Adulteration, sophistication, substitution.*—Professor HALLBERG differentiates adulteration, sophistication, and substitution, direct substitution being the most important. He knows there is an immense amount of adulteration that should be stopped. (83.)

2. *Compounds.*—Professor MITCHELL, chemist to the Wisconsin dairy and food commission, distinguishes two classes of compounds: (1) Legitimate compounds, such as pancake flour, made of certain flours each of which is suitable for a pancake flour and adds to the value of the compound, making a mixture of a certain consistency and desirability. He classes breakfast foods also as legitimate compounds. (2) Additions for the sole purpose of diluting and increasing the bulk and weight, as in the case of pepper. In this case the consumer gets less pepper for his money than if he bought pepper at the full price and diluted it himself. Only the middleman and the jobber get the benefit of diluting with substances belonging to other classes of food.

Professor Mitchell thinks that where the foods are of the same class and one is a prepared substitute for the other, taking its place as food, the compound is permissible, but where the adulterant is simply to dilute, as water in milk or flour in pepper, the compound is not permissible. (118, 119.)

3. *Antiseptics.*—Professor JENKINS states that the Connecticut agricultural station classes anything as adulterated which contains salicylic acid or other modern antiseptics. (461.)

4. *Tests for adulteration.*—Dr. PIFFARD says the chemist is able to determine many adulterants very readily, but there are many others, such as mixed flour, which chemistry almost fails to determine, but which are readily determined by the microscope, and others, such as coloring matters, which are more readily and quickly determined by the spectroscope. (192, 193.)

E. Contaminated food.—1. Filth.—Dr. SCOBELL, president of the Society for the Promotion of Health, considers the subject of adulterated food a vital one, but that of contaminated food greater. The observations of this witness have been made in reference to the way foods are kept on sale. Breadstuffs in most small groceries are kept outside of dirty cases on shelving, the resting place of flies and dust. Bread, cookies, cakes, and crackers should be covered; bread should be covered with tissue paper. In this connection the witness mentions also dried fruits kept in open boxes; tea, coffee, and spices; milk, cheese, lard, and butter kept uncovered and near sinks; candy kept in uncovered pails, boxes, or baskets; figs, dates, and small fruits kept in open boxes; also cooked and salted meats and fish, and all foods not usually washed before use; uncooked meats kept on uncovered counters, open to the handling of passing crowds; vegetables and fruits exposed to dust from careless sweeping of stores, to atmospheric impurities, and to powdered filth from beasts and from the expiration of man. Housewives frequently complain of the hands of clerks in markets and groceries, as where their gory hands are not washed before cutting a steak. Witness pleads for an improvement in the care of food, and says the committee would do well to start a reform in the handling of food, and that the grocers and dealers obeying the committee's suggestions would have the hearty indorsement of women generally. Unless a reform is instituted witness predicts that women will center their entire patronage with the few meat dealers who are required by the laws of their church to keep themselves and their meat absolutely clean. The witness has found a case where tuberculosis was caused by eating meat from an animal killed by a shock on the head. Animals should be killed by letting off the blood. (51.)

Dr. SCOBELL has frequently seen milk with particles of filth on top, and says this should be reformed immediately and the animals taken care of. (52.)

Dr. WILEY says the care and cleanliness of the animals is as important to good butter as its handling in the market. Many dairymen neglect the cleanliness of the cows. (53.)

2. Lead poisoning.—Dr. WILEY says that poisonous and deleterious substances are often put into sterilized vegetable products by accident. The solder used for sealing cans is an alloy composed mainly of lead and tin, both of which are poisonous. Little pellets of solder dropped in during sealing are acted upon by the acids of the vegetables or fruits, forming soluble salts of lead and tin. Tin plate, which is sheet iron washed with tin, is often adulterated; the witness has found as high as 13 per cent of lead in it, and says the use of such materials for packages should be prohibited. It is almost impossible to get tin free from lead, but the amount of lead should be regulated, as an excess of it causes a kind of poisoning known as painter's colic. Germany has a law regulating the amount of lead which may be present. For protecting metal from oxidization when the iron is applied in soldering many things are used, muriatic acid being one of them; it is applied with a cloth, which is often dirty, and often a drop, or sometimes more, of the acid runs into the food. (42, 43.)

Mr. WILLIAM S. EDWARDS, of Chicago, a dealer in mineral water, testifies that siphons containing lead have caused an immense amount of suffering throughout the country in the form of rheumatism and neuralgia, owing to lead poisoning from highly carbonated water being used through such siphons, where people suppose the siphons are block tin instead of lead. They are principally composed of alloys of lead and pewter, and highly carbonated water in passing through them acquires poisonous properties. At the World's Fair Mr. Edwards discovered 20 different alloys of block tin in use. He says the death of Dr. Robinson, at Hornellsville, N. Y., was caused by the use of water from siphons containing lead. (238.)

F. Pure-food movements.—1. National Pure Food and Drug Congress.—Professor FREAR says that a body called the Association of Agricultural Chemists of the United States was organized in 1884. It is composed chiefly of chemists of the United States Department of Agriculture, the United States Bureau of Internal Revenue, and the several colleges and agricultural experiment stations organized under the acts of Congress of 1862 and 1887. In 1895 this body appointed a committee to consider what national legislation was desirable upon the subject of pure foods. In 1897 the committee presented a draft of a bill, and soon after the Hon. Marriott Brosius introduced into the House a bill of substantially the same character. A little later a committee of citizens of the District of Columbia formulated a plan for a national conference of the interests specially affected by such legislation, and such a gathering was held in January of 1898. There were present representatives appointed by the heads of five of the national executive departments, by the governors of 15 States, by about 15 national trade, chemical, and health associations, and by a large number of State and local organizations.

At this conference a permanent organization was effected under the name of the National Pure Food and Drug Congress. (526, 527.)

2. *Society for the Promotion of Health.*—Dr. R. KENNEDY SCOBELL, a lecturer on health, employed by a firm of wholesale dealers in proprietary remedies, and president for the Society for the Promotion of Health, says that at each meeting of the society there are demonstrations of pure food, and women are instructed in the choice of foods. The club regards pure food as essential to health. (50-52.)

3. *Effect of agitation upon exports.*—Mr. HELLER thinks the agitation of the food question, which affects nearly all the manufacturers, will hurt our exports, because it will be believed that our foods are to a great extent adulterated. One of the largest plants in the country runs only three days in the week now (May, 1899); and one of their salesmen, in traveling over his territory, sold only 7 gross of cans, though he had formerly always sold a carload on the same trip. Mr. Heller calls attention to Secretary Wilson's remarks that the agitation in regard to meat will in time cost the country more than the war with Spain, owing to the injury done to the meat industry. (181, 182.) See also *Enforcement of the mixed-flour law, effect upon exports*, p. 28.

II. MIXED FLOUR.

A. *Adulterants used.*—1. *In wheat flour.*—Mr. AUGUSTINE GALLAGHER, president of the Modern Miller Company, says that before the enactment of the mixed-flour law the principal adulterant used was cornstarch made by glucose mills. Another adulterant was corn flour made by the corn mills; and in a few instances barytes was discovered. In Georgia, mineraline or ground clay had been moved from point to point by freight as a commodity, but did not come into general use. He does not think it went farther than 200 miles. The production of an article made from ground clay is quite an industry in Tennessee and Georgia, but he is convinced that the business of adulterating breadstuffs with that material was confined to those two States where the adulterants were produced. (3, 4, 185.)

Dr. WILEY testifies that glucose factories make a high grade of starch known as flourine, which is finely ground and has been extensively used for mixing with wheat flour. (21.)

Professor JENKINS says that the Connecticut Agricultural Station has found no adulteration in any of the hundreds of samples of flour, taken in Connecticut, which it has examined. It has found considerable quantities of corn in one or two samples referred to it from other States. (450.)

Mr. BERNARD A. ECKERT, president of the Eckert-Swan Milling Company, testifies that up to the time of the passage of the pure-flour law his firm had to compete with flour which was not wheat flour, though sold as such. Many millers, and also dealers, mixed cheaper substances with wheat flour, and sold the mixture under their regular brands. This not only injured the honest millers and defrauded the consumers, but also began to militate against the millers in their foreign trade. Shipments of American flour having been inspected in other countries and found to contain foreign substances, the question of laws to exclude American flour, or at least of adopting a rigid system of inspection, was being agitated. (26, 27.)

Mr. FURBAY says patent flour has been discovered by the Agricultural Department to be adulterated with corn. (61.)

In replying to a question whether the cracker and biscuit trusts were using adulterated flour, Mr. GALLAGHER states that he personally inspected two or three bakeries, and found no evidences of adulterated flour, the character of the goods produced there being such that an undue amount of starch would ruin them; but some of the goods produced by the combined bakers would bear more starch than the old-fashioned crackers. (7.)

2. *In feed stuffs.*—Mr. GALLAGHER has been informed by several members of the trade that mineraline is used in feed stuffs. The adulteration of shorts in this way is very easy. (4.)

3. *In starch.*—Professor MITCHELL says flourine, a by-product of glucose, has occasionally been used as an adulterant for white starches. (118.)

B. *Pancake flour.*—Mr. GALLAGHER says the basis of a great many pancake flours is cornstarch or corn flour. Corn flour is corn meal pulverized, and is made by a direct milling process. Cornstarch is made by a process in which an acid treatment is used to separate the starch cells. Considerable evidence was introduced before the Ways and Means Committee of Congress to show that free sulphuric acid remained in the starch. According to the information of people who carry on the business, the sugar and gluten are extracted from the cornstarch. Makers of pancake flour add to wheat flour cornstarch or corn flour, and some put in rice. They all use soda, salt, and tartaric acid for leavening purposes. (136, 137.)

Mr. GEORGE W. SMITH, a flour dealer of Chicago, says pancake flours are all mixed. When the ground buckwheat comes in, in October, it is worth \$6 a barrel. The wholesaler will buy low-grade spring-wheat flour worth about \$1.75; and use 2 barrels of that to 1 barrel of buckwheat, marking the mixture buckwheat flour. If the purchaser asks for pure buckwheat flour he can get it. (154.)

Mr. FURBAY says the Hazel Pure Food Company makes a self-raising flour, known as pancake flour, containing a raising preparation, but not alum. The preparation is a very small proportion of the flour. (62.)

Mr. P. M. HANNEY, a manufacturer of cereal foods at Franklin Park, Ill., says that some of the preparations he manufactures, such as pancake flour, have to be stamped, on account of the ruling that they come within the mixed-flour law. Pancake flour is made of whole-wheat flour, some corn and rice flour, salt, and a little raising preparation—60 per cent being whole-wheat flour. It is not put up to deceive or cheapen, but to make flour more palatable. (59.)

C. Enforcement of the mixed-flour law.—1. Methods.—Mr. GALLAGHER says that in enforcing the mixed-flour law he went to a mill in Kansas which had borne a good reputation, but which he knew had been mixing flour, and found stored on the premises a large amount of glucose starch. The act gives no one power to prevent millers from occupying their premises with adulterants, but he informed the miller that he would take a memorandum of the amount of starch on hand, and the next agent would see if he still had the same amount; if not, he would find out what he had done with it. As a result the miller took out a license, and now mixes flour according to law. (2.)

Mr. Gallagher says that his usual mode of testing flour is by the sense of touch, which will detect excessive starchiness. When in doubt, he would send a sample to the laboratory, where a microscope of 350 diameters reveals the presence of corn granules in the wheat very readily. After that, samples are submitted to the Chemical Bureau of the Treasury Department. (7.)

2. Effectiveness in stopping adulteration.—Mr. AUGUSTINE GALLAGHER, giving the results of his experience while acting as a revenue agent in charge of the enforcement of the mixed-flour law of 1898, testifies that in a number of cases flour has been found mixed with products other than wheat, and not properly stamped in accordance with the law. He believes that since the act took effect no flour in the United States has been adulterated with ground clay (mineraline) or ground stone (barytes). The effect of the act has been to destroy the use of those articles. There have been only one or two cases in which flour was made and offered for sale contrary to law, but a great deal of mixed flour made previous to the enactment of the law was found and was held to be taxable under section 49. (1, 3.)

Mr. Gallagher says the principal corn products are corn flour and starch, the latter being produced by glucose factories. Manufacturers of both these products claim that they are healthful, and in the case of corn flour the truthfulness of the statement is not questioned. Before the enactment of the mixed-flour law they claimed further that where mixing was done their customers were so informed, and the goods were sold on their own merits; that not only the dealers but the consumers, knowing what they were buying, wanted the goods, and that therefore there was no reason for the legislation. The result of the enforcement of the act, however, is that 95 per cent of the people engaged in mixing corn products into wheat flour have retired from that branch of the business; they say that people absolutely will not buy mixed corn and wheat flours when they know it, except the flours in small packages which everybody expects to be mixed, such as buckwheat flour, which is often mixed with from 15 to 20 per cent of wheat flour so that the cake will hold together better when baked. The claims of those who said they could sell mixed flour just as well branded as not branded are answered by their failure to do so. To-day they have absolutely no mixed-flour trade, proving that people want pure flour. The enforcement of the flour act has accomplished more in three months than was ever claimed for it by the most extravagant. It has stopped the adulteration of wheat flour. (5, 136.)

Mr. Gallagher has heard no complaint concerning the law, except (1) in regard to self-raising flours, (2) from the glucose trust, which claims that its business has been hurt, and (3) from the millers of corn, who have lost the special customers for whom the mixing was done. (6.)

Mr. ECKERT thinks that every honest miller and dealer feels that the law has accomplished what was intended, and knows of no other act that has given as general satisfaction. He has not heard of any surreptitious mixing of flour in disregard of the law, except that a Government expert testified that there had been a shipment of 10,000 barrels of flour surreptitiously mixed with mineraline, or terriana, in North Carolina. He attributes the good effect of the law to the requirement that mixed flour must be branded, and says the tax "cuts no figure at all." (27, 28.)

Mr. FURBAY thinks the operation of the law has been beneficial. It has removed some of the difficulties of his business. It is the only law he knows of which seems to be at all effective in preventing the importation of adulterated food. (62.)

3. Effect upon exports.—Mr. GALLAGHER testifies that the export trade in wheat flour increased between 24 and 25 per cent during the first three months of the operation of the mixed-flour law. It was claimed by those who assumed to represent the mixers that the enactment of the law would ruin the corn-milling business of the country and injure the small dealers and the corn growers. As a matter of fact, while the wheat flour exports increased more than 24 per cent during August, September, and October, 1898, corn-mill exports increased during those months about 48 per cent as compared with the same months of 1897. (6.)

Mr. Gallagher thought the exports of flour in 1899 would amount to several million barrels more than ever before. At the time of his testimony (May, 1899), the increase had been about 20 per cent. He attributed the increase very largely to the mixed-flour law. (136.)

Mr. Gallagher says that foreign importers of American flour are a unit in admiration of the promptness with which the American people came to the rescue of the flour millers and of the present system of guaranteeing the purity of their goods. He submitted a number of letters received from representative importers of American flour in Great Britain and on the Continent of Europe, testifying that the enactment of the law had improved the trade in American flour by restoring confidence in its purity. (7-11.)

Mr. ECKERT testifies that in 1896 about 10,000,000 barrels of flour were exported, and that since the mixed-flour law went into effect the exports have been very large. He estimated that in 1899 the exports of American flour would exceed 15,000,000 barrels, the increase being due in part to the feeling that under Government supervision flour purporting to be wheat flour is pure wheat flour. (27.)

D. Suggested amendments to the mixed-flour law.—Mr. GALLAGHER advises that the act be amended so as to prevent millers from occupying their premises with adulterants, and by excepting self-raising pancake and buckwheat flours, etc.; also by providing licenses for dealers in mixed flours, so as to compel them to keep records, and by providing a penalty for failure to report business transactions. (2, 3.)

Mr. ECKERT thinks the mixed-flour law an excellent law, which ought to remain in force with a few slight amendments, perhaps excluding baking powder in small packages. He suggests that the exception of self-raising flour might lead to the abuse of the law; flour might be put up in packages and called self-raising flour to impose upon the public. (27.)

III. BAKING POWDER.

A. General statements.—Professor MALLET states that four classes of baking powder are used in the United States: First, there are the cream of tartar powders, in which nothing but cream of tartar, bicarbonate of soda, and starch is used; second, alum powders, composed of alum, bicarbonate of soda, and starch; third, the phosphate powders, composed of acid phosphate of calcium, bicarbonate of soda, and starch; fourth, alum phosphate powders, composed of alum, bicarbonate of soda, acid phosphate of calcium, and starch. Nearly all of the powders experimented with by Professor Mallet belong to the last class. (552, 566.)

Professor Mallet asserts that one great danger in the use of alum baking powders is the danger of imperfect manufacture. If either the alum or the soda is not weighed out in the proper proportions, and an excess of alum is used, there will not be enough soda to decompose all the alum, and some unchanged alum will be left in the bread. Probably there is not much danger that this will occur in the case of the large manufacturers; but the simplicity and cheapness of the manufacture have led a multitude of small men, practically ignorant of chemistry, to go into the business, and not much reliance can be placed upon the accuracy of their work, even in weighing.

In an actual experiment with 27 samples, representing 17 alum baking powders, Professor Mallet found an excess of soda in all cases but two. In the two powders which showed an excess of acid the acidity was in part due to acid calcium phosphate.

In addition to the dangers of the use of wrong proportions in the materials, there is the danger of imperfect mixture, which would result in an excess of alum in some portions of the powder and an excess of soda in others. (551, 552, 559.)

Mr. GEORGE C. REW, a chemist and vice-president of the Calumet Baking Powder Company, testifies that all baking powders are alike in containing bicarbonate of soda, an alkaline ingredient which furnishes the leavening gas, but differ

in the acid matters used to neutralize this soda and free the gas. These acids may be cream of tartar, tartaric acid, alum, acid phosphate of calcium, or any solid acid salt, such as sulphate of sodium. Practically, there are only two classes of baking powders having any great sale—cream of tartar baking powder, now manufactured by the baking powder trust, and the alum and phosphate baking powder. The consumer eating food prepared with cream of tartar baking powder does not take into his stomach one particle of cream of tartar; he eats Rochelle salts. When bicarbonate of soda and cream of tartar react upon each other in the oven, the resulting substances are carbonic-acid gas, which, in escaping, puffs up the dough, and Rochelle salts, the active ingredient of Seidlitz powders. The best cream of tartar baking powder on the market contains about 28 per cent of bicarbonate of soda. To neutralize this quantity of acid 62.6 per cent of cream of tartar is required. This quantity will leave in the food 70 per cent of anhydrous Rochelle salts. A teaspoonful of baking powder weighing about 200 grains and making 14 ounces of bread, or 12 good-sized biscuits, will leave in the food 188 grains of Rochelle salts. When alum and bicarbonate of soda are mixed in their equivalent proportions, there will not be one particle of alum left in the food prepared. All alums are double sulphates of sodium and aluminum, in which the sodium may be replaced by potassium or ammonia, and the aluminum by iron or chromium. With an alum phosphate baking powder of good quality, containing 28 per cent of bicarbonate of soda neutralized with acid phosphate of calcium and sodium alum, about 20 per cent of alum is used, the rest of the alkali being neutralized with acid phosphate. The residue left in the food will be hydrate of aluminum and sulphate of soda resulting from the decomposition of the alum, and phosphate of calcium and phosphate of sodium from the acid phosphate. An alum phosphate baking powder containing 20 per cent of alum will leave in the food about 6 per cent of its weight of hydrate of aluminum, and about 20 per cent of its weight of sulphate of soda. Mr. Rew says there is a violent prejudice in the public mind against alum phosphate baking powder, kept alive by advertising and resulting in benefit to some baking powder manufacturers. All baking powder manufacturers use starch to dilute their mixtures and get the gas percentage they wish. If they used more alum than the soda would neutralize, they would be adulterating or filling their baking powder with alum, and as starch is a very much cheaper substance, no manufacturer would use more than his soda required. It is possible to have powder manufactured which would leave some alum, but Mr. Rew has never found such baking powder. (87-89.)

Professor AUSTEN says that the gist of many of the articles on the baking powder question is that alum baking powders are injurious because the material in them is alum, the inference being that the alum would have the same effect on the human system whether it was taken as alum or taken in the form of food prepared with alum baking powder. In like manner it is often assumed that cream of tartar baking powders are wholesome because cream of tartar is a product of the grape. The question is not whether alum taken in sufficient quantities is poisonous. Cream of tartar produces physiological effects if it is taken in sufficient quantities. But neither cream of tartar nor hydrate of alumina is poisonous in the amounts ordinarily received in food, and neither of them, so far as Professor Austen can discover, produce cumulative effects.

Furthermore, the question is not as to the effects of alum in the case of one baking powder, or of cream of tartar in another, because neither alum nor cream of tartar exists in food leavened with baking powder. The essential constituents of the cream of tartar baking powder are cream of tartar and bicarbonate of soda. Under the influence of moisture and heat a chemical reaction takes place, with production of carbonic acid gas, which, in escaping, produces the leavening effect, and Rochelle salts, which remains as a residuum in the food. If an alum baking powder is used, carbonic acid gas is evolved and escapes in the same way, and the residuum consists of sulphate of soda and hydrate of alumina. The same leavening effect may be produced with bicarbonate of soda and a carefully measured quantity of hydrochloric acid. In that case the residuum is common salt. The question of the harmfulness of alum baking powders is not at all the question of the harmfulness of alum. It is the question of the harmfulness of the residuum of sulphate of soda and hydrate of alumina. (532, 533.)

Dr. Austen, who has been employed by several manufacturers of alum baking powders to conduct special experiments as to the effects of food prepared with such baking powders and to examine the literature of the subject, asserts that the public mind has been prejudiced by the publication of a great many articles in newspapers and journals which were not properly reading matter but paid advertisements. Many of the publications which have printed this matter have made contracts which did not allow them to publish any of opposite tenor. (531, 533.)

Professor MITCHELL says the starch used in mixing baking powders is usually cornstarch. (118.)

Professor MALLET states that no baking powder manufacturers, so far as he knows, make the materials of the powder. They only buy the cream of tartar or alum, as the case may be, the bicarbonate of soda, and the starch, and mix them. (554.)

B. Leavening power.—Professor EATON says that other things being equal the value of a baking powder is dependent upon the amount of gas evolved, some evolving only 5 or 6 per cent and others as high as 14 or 15 per cent. (236.)

Professor WEBER, of the Ohio State University, says that on examination of 36 brands of baking powders during the summer of 1887, of which 8 were cream of tartar powders, 2 phosphate powders, and 20 alum powders, the amount of carbonic-acid gas evolved by the alum powders was found to be one-half as great as that evolved by the other kinds. About twice as much alum powder was required to give the same results. (605.)

In experimenting upon 17 brands of alum baking powders, Professor MALLET found the amount of gas liberated on treatment with water to vary from 37 cubic inches to 100 cubic inches per avoirdupois ounce of baking powder.

"The variability observed appears to be partly due to variation in the proportion of starch or other indifferent matter used, partly to the variable character of the commercial bicarbonate of soda employed (containing a larger or smaller proportion of true bicarbonate), partly to greater or less purity of the other active ingredients, partly to greater or less care in the adjustment to each other in proper proportions of the acid ingredients and the soda, partly to want of due care to insure uniform mixture of the ingredients, but mainly to greater or less absorption of moisture from the air in keeping, different degrees of care in drying the materials, and in putting up the powder in packages for sale, and no doubt difference in age of some of the samples." (558, 559.)

Professor WITHERS, of the North Carolina Agricultural Experiment Station, says that of 24 samples of baking powder bought in the open market in that State, without any attempt to secure any particular brand or class of powders, 2 were tartrate powders prepared in New York, 2 were phosphate powders prepared in Rhode Island, and the remaining 20 contained alum. One of these was an alum and tartrate powder, and contained practically no available carbonic acid. Six were alum and phosphate powders; one of these contained practically no carbonic acid, another less than 3 per cent, and another less than 4 per cent. Thirteen were straight alum powders. (617.)

C. Economic considerations.—1. *Differences in price.*—Professor MALLET says that the average price of alum baking powder is from 10 to 15 cents a pound, and the price of cream of tartar powders is from 40 to 50 cents. The fact that cream of tartar powders are largely sold in spite of this great difference of cost proves that the use of alum is popularly believed to be injurious. (555, 556.)

Professor MITCHELL says there is a sale for alum baking powders, especially in supplying boats, hotels, boarding houses, trains, etc., where the steward must make a showing of economy. (108, 109.)

Professor AUSTEN declares that the economic advantage of the use of alum baking powder is exceedingly great. In Georgia a baking powder is sold for 10 cents, of which 1 teaspoonful raises a quart of flour. An amount of high-grade cream of tartar to give the same degree of gas efficiency would cost nearly \$2. To forbid the use of alum baking powder would increase the cost of living by many millions of dollars. Professor Austen has figured the difference in Georgia alone at over \$3,000,000 a year. (542, 543.)

Dr. MCMURTRIE, consulting chemist of the Royal Baking Powder Company, says that 1 pound of tartrate baking powder is equivalent in leavening power to 1½ pounds of ordinary alum powder. The relative cost would therefore be 45 cents and 15 cents for the same leavening power, on a basis of a price of 10 cents a pound for alum powder. The contrast between \$2 and 10 cents suggested by Dr. Austen is misleading. The saving of \$3,000,000 to the inhabitants of Georgia alone, which Dr. Austen estimates to be effected by the use of alum rather than tartrate powders, "would be equal to one-third of the amount paid by consumers for all the alum baking powder made and sold annually in the whole country," "even taking the exaggerated figures put forth in the claims of the alum baking-powder manufacture." (600.)

2. *Cost of alum.*—Dr. MCMURTRIE asserts that the alum used in making baking powder costs no more than 3½ cents a pound, and that the materials of the alum baking powder as a whole do not cost 2 cents a pound. (600.)

Mr. ALLEN MURRAY, a drug and spice miller, says that at one time he furnished burnt alum to be used in the manufacture of baking powder. The price was about 24 cents, but finally got down to 8½ cents. At first there was a patent on

burnt alum, but he fought it for three years and beat the patentee. The manufacturers themselves wanted to burn it, and reduced the price to 3½ cents; then witness went out of the business. It is manufactured in Buffalo and in New York City; the Pennsylvania Salt Company, the largest manufacturers, manufacture it in Chicago. The Grant Baking Powder Company manufactures its own, or used to. (70.)

3. *Deceptive labels.*—Professor MITCHELL says that alum baking powders are sold either under deceptive labels or not labeled at all as to their composition, and that while they are sold at wholesale at very low prices, they frequently reach the consumer at prices as high as that of cream of tartar baking powder, very frequently prizes being given with them which are supposed to be given for nothing. The dairy and food commission of Wisconsin ordered the arrest of a Milwaukee merchant who sold the inspectors 2 samples of baking powder, one for 20 cents a pound and the other, labeled "best" baking powder, but identically the same powder, for 50 cents, a china dish being given with it. The witness read the label used, which contained the words, "Warranted Cream of Tartar Baking Powder Company, New York, U. S. A.," in such a way that the careless reader would read, "warranted cream of tartar baking powder," the word "company" being on the lower line. The formula which would make cream of tartar baking powder is given, but there is no cream of tartar in the baking powder, nor is it made in New York. To comply with the Wisconsin law requiring such powder to be branded as containing alum, the manufacturers have left their deceptive label on the side and top, and stamped on the side in black letters, "This baking powder contains alum." Professor Mitchell considers this one of the most flagrant cases of deceptive labeling. (107, 108.)

D. *Cream of tartar.*—1. *Source and action.*—Professor VAUGHAN, dean of the medical faculty of the University of Michigan, says the baking powders most commonly sold in this country are the tartrate and the alum baking powders, and that the ideal baking powder is the tartrate, consisting of the acid tartrate of potash, obtained from the grape. When the wine ferments, the tartrate, being less soluble than the alcohol, is precipitated, and is then taken and purified and mixed with bicarbonate of soda, and a little starch to keep it dry and to act as a filler. In making bread the acid tartrate decomposes and sets free carbonic acid, which leavens the bread and improves its digestibility, because the gastric and other juices get into the pores better. He thinks there can be no objection to the use of tartrate baking powder; the Rochelle salts formed by the action of the tartrate of potash on the bicarbonate of soda are not injurious, but are beneficial. (205, 206.)

Dr. WILEY says cream of tartar is made from grapes. It is the acid principle of the grape, made from the argols which settle in casks and bottles of wine. He would not say that it would be wholesome in excess, nor would he call it injurious. (47.)

Professor MALLET states that cream of tartar is the bitartrate or acid tartrate of potassium obtained from grapes. As the fermentation of wine progresses, the wine becomes less and less capable of holding the tartar in solution, and crusts of argol or crude tartar are formed in the casks. Cream of tartar is obtained by dissolving and crystallizing this argol. Some cream of tartar is also obtained from the spent yeast or lees or dregs of the wine vats. The whole supply comes from the wine-producing countries. Some, but not much, is obtained from the wine industry in the United States. (553, 554.)

Professor PRESCOTT says cream of tartar is a constituent of fruits, especially the grape. The acid salts of fruits are among the most wholesome and important constituents of human food, and when entirely lacking leave sailors and soldiers victims of scurvy. Cream of tartar has a high rank as a wholesome article of food, both in itself and in what it leaves behind after the process of baking. This residue is Rochelle salts, which in the doses in which it occurs in food has only that favorable effect which fruits have. (200.)

Mr. PETRAEUS, a chemist, says that cream of tartar baking powder produces 70 per cent of sodium potassium tartrate, which is the basis of Rochelle salts. (292.)

Dr. McMURTRIE states that the residue left in bread by the use of cream of tartar baking powder is sodium potassium tartrate. This is disposed of in the process of digestion "in exactly the same way as other vegetable substances of like character, and is digested in exactly the same way as sugar." The tartaric acid radical is broken up into carbonic acid and water, and the alkaline radical passes into the blood, supplying the necessary alkaline constituents of it, and is eliminated by the kidneys, tending to correct any unfavorable acidity of the fluids of the body. The amount of tartrates in an ordinary loaf of bread made with cream of tartar baking powder may be equivalent to that contained in a pound and a half of ripe grapes. (594, 595.)

Professor MALLET says that he has never directly investigated the wholesomeness of cream of tartar baking powder, but he has no reason to believe that it is unwholesome. He can imagine a case in which a large amount of cream of tartar might be injurious, by rendering the urine alkaline and causing precipitation of the earthy phosphates. On the other hand, many people with a tendency to uric acid deposition from the urine are benefited by the production of such an alkaline character. (554.)

2. *Adulteration and substitution.*—Dr. MCMURTRIE, consulting chemist for the Royal Baking Powder Company, the Cleveland Baking Powder Company, and the Price Baking Powder Company, states that the cream of tartar which is used by these companies in the manufacture of their powders does not vary appreciably from a purity of 100 per cent, and that the other ingredients used in their products are of a similar high degree of purity. (594.)

Dr. WILEY bought 7 samples of cream of tartar in New York City, 2 or 3 in drug stores, and the rest in groceries. Three of the samples were cream of tartar, one contained 98 per cent of cream of tartar, and one 24 per cent. The other two were phosphate of calcium and calcium sulphate combined, without a trace of cream of tartar. This combination is the substance which is known in the trade as c. t. s., or cream of tartar substitute, but they were not labeled as substitutes. They were sold by the retailer as cream of tartar, and at the price of cream of tartar, 50 cents a pound. (584.)

Professor MITCHELL, chemist to the Wisconsin dairy and food commission, says that as a rule the cream of tartar purchased by the Wisconsin inspectors in drug stores was of high grade, generally having a large amount of actual cream of tartar in it, and was much more nearly worth the price paid than the samples purchased of grocers, which as a rule were not cream of tartar to any great extent, 80 per cent being substitutes generally composed of acid phosphates of lime and alum mixed with starch, and sometimes small amounts of cream of tartar. In a few samples there were possibly natural impurities in large amounts—tartrate of lime and sulphate of lime—small amounts of which were also present in some of the drug-store samples. The substitutes for cream of tartar are generally sold as phosphatic cream of tartars. The jobber buys them of the manufacturer as phosphatic tartrates, but sells them to the grocer as cream of tartar, or did so in Wisconsin until investigated. Professor Mitchell much prefers cream of tartar to an alum substitute, and does not think alum suitable for food. (117.)

Professor Mitchell says acid phosphate of lime is made either from bone phosphate or from natural rock phosphate by treatment with sulphuric acid, and is generally mixed with flour or starch to prevent caking. (117, 118.)

Mr. MURRAY says a certain line of goods are considered commercial goods, such as commercial cream of tartar, some of which has not very much cream of tartar in it. This costs about 5 cents a pound, while the pure is worth about 21½ cents a pound. (67.)

Professor FEAR says that a very large proportion of the samples of cream of tartar examined by him consisted either of terra alba, or terra alba with a little free tartaric acid, or cream of tartar diluted with terra alba or with acid calcium phosphate. (529.)

E. *Composition of alum baking powder.*—Professor MALLET, professor of chemistry in the University of Virginia, says that alum began to be used in baking powders in this country about 20 or 25 years ago. Alum is a very cheap material and it produces a good-looking bread. The alum baking-powder industry has consequently become very large. Some 5 or 6 per cent or more of phosphate of calcium is very commonly added to the alum baking powders. (551.)

Dr. WILEY says there are various forms of alum, which is a double salt of which alumina is one base and ammonia, potash, or some other metallic oxide the other. (46.)

Professor AUSTEN says that the material which is now commonly used in baking powders is not what is popularly known as alum. If a drug store orders alum, a potash alum is understood; and this was formerly used in baking powder. In making an alum baking powder, however, the evolution of gas must be so regulated that it will be given off slowly and in accordance with the temperature. If it goes off too quickly the bread swells up in a big bubble; if too slowly, it will not rise. It has taken a great deal of experimenting to produce a so-called alum preparation which will give exactly the same results in the evolution of gas as a cream of tartar or a phosphate powder. The alum which is now used in baking powders is c. t. s., or cream of tartar substitute, a calcined mixture of sulphate of alumina and sulphate of soda. C. t. s. is made, Dr. Austen believes, only by 3 very large chemical manufacturers. The baking-powder makers do nothing but put the materials, c. t. s., bicarbonate of soda, and starch or flour, into the

mixing machine. All the manufacturers of alum baking powder use substantially the same formula; the only difference is in the strength. (541, 542.)

Dr. McMURTRIE says that alum baking powder consists of a mixture of soda alum, bicarbonate of soda, or ordinary baking soda, and about 60 per cent of starch. (596.)

Dr. McMurtrie says that 3 alums have been used for the making of baking powder. The first is potassium alum, double sulphate of alumina and potassium; the second, ammonium alum, a double sulphate of alumina and ammonium, and is less expensive than the first; the third, soda alum, the double sulphate of alumina and sodium, is less expensive than either. It is the last which is now chiefly used in the manufacture of alum baking powder. It is not generally sold under the name of alum, but is labeled and billed as c. t. s., which means cream of tartar substitute. The manufacturers of alum baking powder have often no knowledge of chemistry, employ no chemists, and have no means of knowing the composition of their materials except the statement of the manufacturer they buy from.

The first process in the manufacture of alum is to treat the mineral known as bauxite with sulphuric acid. The solution thus obtained is evaporated to a proper density and mixed with a solution of soda. When the mixture cools the 2 substances, alumina sulphate and sodium sulphate, crystallize together, forming what is known as soda alum. A considerable amount of water is taken up in the process of crystallization. The water is driven off by heat, and a porous matter remains, which is called "burnt alum." This burnt alum, when pulverized, is the substance which is used in the baking-powder manufacture. In order to have a product which corresponds exactly with the theoretical composition of sodium and alumina sulphate the greatest care must be exercised in the manufacture. It generally happens that some of the acid constituent of the compound is driven off in the process of burning, and we have in the finished product some uncombined or partially saturated alumina. The product obtained in this way can not, therefore, have a constituent composition. Its power to decompose the bicarbonate of soda when used in baking powder must be variable. It is readily understood, therefore, why the manufacturer of the alum should in sending each lot to his customer indicate what its neutralizing power is, and why the manufacturer of baking powder must accept what the alum manufacturer tells him, and why the baking powder must have an uncertain and variable composition. (595, 596.)

Professor MALLETT states that the greater part of alum is now obtained from bauxite, a native hydroxide of aluminum. This is treated with sulphuric acid of a certain strength, sulphate of sodium is added, and the whole is evaporated until it sets in a crystalline mass on cooling. (554.)

F. Alum not found in natural foods.—1. Organic bodies.—Dr. WEBER mentions as an objection to alum baking powder that aluminum compounds do not occur in either the vegetable or the animal matters which are the sources of food for man. (605.)

Professor MUNROE believes that we should not use as food any substance which does not appear naturally in the vegetable or animal organisms. Cream of tartar occurs naturally in vegetation. Phosphates occur naturally in vegetables and animals. The salts of aluminum very rarely appear in the analysis of animal or vegetable material, and in the few cases in which it has appeared it has not been shown that its presence was not accidental. This is the more remarkable since aluminum is estimated to be the third element in abundance. (608.)

Dr. McMURTRIE, consulting chemist of the Royal Baking Powder Company, asserts that no compound of aluminum is ever found in any flowering plant or any natural food of vegetable or animal origin. He has seen a single statement by a chemist in Japan that aluminum has been found in wheat; but he believes that the aluminum was introduced accidentally and was not contained in the grain itself. (599.)

2. Potable waters.—Dr. McMURTRIE, consulting chemist of the Royal Baking Powder Company, says that aluminum compounds do not exist in potable waters in quantities sufficient to be taken into account. It has been said by Dr. Flint, and also by Dr. Smith, that certain public analysts in England, in determining the amount of alum which has been added to bread, make a correction of a grain and a half per pound of bread to correspond with the alumina in the water used. This would mean, according to Dr. McMurtrie, about $1\frac{1}{4}$ parts of alum in 7,000 parts of water. He has made inquiry among chemical experts who have had much to do with the examination of natural potable waters in the United States, and they declare that they have failed to find alumina in such waters in quantities exceeding 3 parts per million. (599, 600.)

G. Chemical action of alum baking powder.—Dr. WILEY says alum is used in baking powder to free the carbon dioxide from the bicarbonate of soda. (46.)

Professor HALLBERG says that alum baking powder leaves a residue of aluminum hydrate in the bread. The question as to the character of aluminum as an ingredient in baking powder is not yet settled. The authorities differ, and experts can be found to assume any view that the employer desires. (102.)

Mr. GEORGE C. REW says that, strictly speaking, alum means a double sulphate of an alkaline metal—aluminum. The substance left in food prepared with alum baking powder is hydrate of alumina and sulphate of soda, neither of which is alum, though alum may be manufactured from them. (104.)

Dr. MCMURTRIE says that when the baking powder is brought into contact with water, either by itself or mixed with flour, and the mass is cold, comparatively little action occurs. When heat is applied the sodium constituent of the bicarbonate of soda takes the place of the aluminum in the alum. Carbonic acid is liberated, and some chemists say that the aluminum is set free in the form of aluminum hydroxide and all of the sodium of the bicarbonate of soda is changed into sodium sulphate, which is also one of the constituents of the soda alum. The solid residue which remains in the bread is sodium sulphate and an aluminum compound. There are good authorities who believe that the decomposition of the alum is never complete, and that some unchanged alum always remains in the bread. (596.)

Dr. McMurtrie states that in the later pharmaceutical authorities in the United States alumina—that is, aluminum hydrate—is described as a medicinal agent and an astringent. In the dialysis of aluminum compounds the compound which is left behind is aluminum hydrate. It seems probable that it has an astringent effect upon the cells of the kidneys. (599.)

Professor MOTT found that the administration of bread made with excessive amounts of alum baking powder produced the same effects upon dogs as the administration of hydrate of alumina. Phosphate of alumina in large doses, though producing some physiological disturbances, had no such marked effects. Professor Mott concludes from these results that the alumina in biscuits made with alum baking powder must be, to a very great extent, in the condition of hydrate of alumina rather than phosphate. (623-631.)

Of the 17 brands of alum baking powder examined by Professor MALLET, all but 1 contained calcium acid phosphate as well as alum. In all cases in which phosphate was used nearly the whole of the aluminum was present as phosphate, and not as hydroxide (hydrate), after treatment with water. (561.)

Professor MOTT quotes from Professor Patrick, who considers himself to have proved the wholesomeness of alum baking powder, the admission that if bread is carelessly mixed with an insufficient amount of water, part of the flour, and with it part of the powder, remains nearly or quite dry, and after baking, such bread will contain a certain small amount of alum. Professor Mott asserts that there are few who make good bread, and therefore regards Professor Patrick's remark as equivalent to an admission that alum is likely to appear in alum baking-powder bread. (635.)

H. Solubility of aluminum hydrate.—1. *Denied*.—Mr. REW says that Francis Sutton, the English analyst, whom he considers the best authority who has ever investigated the subject, determined by experiments on living animals that hydrate of aluminum was not soluble in digestive juices, but was excreted in the same condition in which it was taken into the stomach; the sulphate of soda having almost identically the same physiological action as the Rochelle salts left by cream of tartar baking powder. Mr. Rew says aluminum hydrate is soluble in hydrochloric acid, but not in the weak hydrochloric acid of the stomach, according to Sutton's testimony in the Norfolk Baking Powder Case. (88, 104.)

2. *Doubtful*.—Dr. MEW, chemist to the Army Medical Department, says that it is quite uncertain whether aluminum hydroxide is dissolved in the stomach or not. Ordinarily it is practically an insoluble substance. In the human laboratory it may go into solution, possibly. If it does it may do harm; but Dr. Mew knows of no evidence that it does. (612.)

Professor MOTT refers to the experiments on cats, by which Professor Patrick thought he showed alum baking powder to be uninjurious. Professor Patrick fed cats with biscuits made with as large a proportion of alum baking powder as 6 teaspoonfuls to 1 quart of flour. From 20 minutes to 2½ hours after eating these biscuits the cats were killed, and the contents of the stomach and of the small intestines were examined for dissolved alumina. Professor Patrick says that "in every case a large amount of sodium sulphate was found (in solution as was expected), and also a certain amount of hydrate of alumina undissolved." Professor Mott declares that the meaning of the statement that hydrate of alumina was found undissolved is not clear, and he does not think that Professor Patrick's

experiments, so far as they are explained, prove that hydrate of alumina is not dissolved in the stomach or is not absorbed into the system. (635.)

3. *Affirmed.*—Professor PRESCOTT thinks the most objectionable constituent of baking powders in this country is alum. As a salt of aluminum it contains an astringent which has a medicinal effect when applied with remedial intent, but is injurious when taken habitually and indiscriminately. In the mixing of bread sponge it undergoes a change, and doubtless some portion becomes very difficult of solution, so that not all of the alum comes into solution in the stomach; no one can tell how much. The alum is liable to go into solution, and if not fully dissolved when in the condition of aluminum hydrate or other compound of alum in contact with the acidulous or albuminous fluids of the stomach, it is liable to go into combinations with the digestive agents of the stomach and with the constituents of food, so as to have an effect as an astringent and a precipitant, which, though slight, tends to impair the sources of nutrition when continued from year to year. No two stomachs are in exactly the same condition. The chemical agents of solution in the stomach are too complex to be fully defined by chemistry at the present time. (196, 197.)

Dr. CRAMPTON says that the solubility of hydrate of aluminum and phosphate of aluminum in water or dilute acid is a question readily answered by any chemist, but their solubility in the various and complex alimentary fluids, and under the conditions of natural digestion in the human body, is quite another matter. Some experimenters have reported practically no solution, others a considerable amount. Improper proportioning of the different ingredients in the powder, and improper mixing of the powder in the dough, are likely to result in an imperfect reaction and in the appearance of more or less of the original salt in the bread. Considering this, as well as the various character of the solvents used and the different conditions, it is easy to understand the difference between the results of different experimenters; but it must be expected that at least small quantities of alum will be absorbed. (623, 624.)

Professor MITCHELL, chemist to the dairy and food commission and the State board of health of Wisconsin, has failed to find any alum baking powder which would react perfectly and not leave some soluble alum. He says that there is no question but that hydrate of alumina is soluble in the dilute acids of the stomach in a normal condition, and his opinion is that it would be more or less soluble as a chloride, or at least liable to absorption, its tendency being to act as an astringent and possibly as a mild irritant—as a drug, and not as a food. He would prefer either cream of tartar or phosphate baking powder. (103.)

Dr. WEBER says that aluminum hydroxide is itself a mild astringent, and is soluble in dilute acid, and consequently in the juices of the stomach, and that the salt thus formed acts in all respects like alum itself. (606.)

Professor FAIRHURST, of Kentucky University, says hydrate of alumina is soluble in the acids of the stomach. (620.)

Dr. McMURTRIE asserts that it is indifferent whether any unchanged alum remains in the bread or not; for even if the reaction is completed in the manufacture of the bread the resultant aluminum compounds, under the influence of the several acids which are present in the gastric juice, must produce all the medicinal and therapeutic influences which are ascribed to alum. It has been proved that soluble aluminum compounds do exist in bread made with alum baking powder; but whether they exist in the bread itself, or whether they are formed by the reactions occurring in the stomach, the system may be subjected to the action of these soluble aluminum compounds when such bread is consumed. (596, 597.)

Dr. McMurtrie says further that Dr. Smith and Dr. Flint, upon whose experiments the statements of Dr. Austen are based (539, 540) stated in their testimony in New York that they knew nothing about the disposition of aluminum compounds in the body when ingested with the food; that they knew nothing about the amount of alumina that was ingested; and that they were unable, therefore, to say whether the alumina passes through the alimentary tract unacted upon and inert, or whether it went into the blood and the circulation; and, if it did go into the blood and the circulation, whether it would be wholly excreted or whether it would remain deposited in the organs as a disturbing and injurious element. (598.)

Professor MUNROE, of the Columbian University, testifies that though aluminum hydroxide is but slightly soluble in water, it is soluble in lactic acid and acetic acid, which may occur in the stomach and may be produced during the process of digestion. He therefore believes that the alum product in bread is capable of a harmful effect. (609.) After making and artificially digesting bread in which alum baking powder was used Professor Munroe states, in a letter to Senator Mason, that his experiments "show conclusively that hydrochloric acid of the strength found in the gastric juice of man will, at ordinary temperatures, dissolve

the residues left by alum baking powders in bread baked with them, and that the solutions of the aluminum compounds thus formed will pass through animal membranes by osmosis." (638.)

When aluminum hydroxide and aluminum phosphate are heated they give off water, and become less soluble. For the purpose of determining the degree in which the water may be driven off and insolubility produced in the process of baking, Professor MALLET made experiments as to the temperature of the interior of bread in the oven. Experiments were made with a large public baking oven of brick, 12 feet by 14 feet, heated by a coke fire; with a small brick oven in family use; and with the ovens of ordinary cast-iron cooking stoves, burning both wood and coal. The results were substantially uniform. The temperature of the oven atmosphere varied from 472° to 496° F. The maximum temperature shown by the registering thermometer with its bulb in the center of a loaf of bread, large or small, never exceeded 212° F., and at that temperature not all the water is removed. The lowest temperature recorded was 197° F. In that case the bread was not quite sufficiently baked through. (561, 562, 565.) Professor Mallet concludes that part of the aluminum is probably taken into solution. (566.)

I. Physiological effects of alum baking powder.—1. *Harmless.*—Professor AUSTEN states that the residuum left in bread when alum baking powder is used consists of sulphate of soda and hydrate of alumina. The amount of sulphate of soda is so small that it may be overlooked. Indeed, it is asserted that the presence of it is rather advantageous. The manufacturers of the well-known "grape nuts" state that one of the most advantageous features of this food is the presence of a certain amount of sulphate of soda. As to the hydrate of alumina, Dr. Austen asserts that several authorities have pronounced it perfectly harmless under practical conditions. Some experiments from which a contrary inference has been drawn do not seem to Dr. Austen to warrant the inference. Professor Mallet ate quite large quantities of hydrate of alumina, prepared from alum baking powder, and noted the effect produced upon himself. He thought it gave him indigestion. Professor Mallet is an eminent man, but Dr. Austen does not think that he considers himself a physiological chemist. He is not accustomed to experimenting on himself, and it is therefore questionable whether he is able to observe accurately the effects upon himself of a given substance. If a man unaccustomed to such experiments eats any substance, and devotes his thoughts to the effects which it may have upon him, violent effects due to suggestion may appear. Violent diarrhea has been produced by a glass of water with the suggestion that diarrhea would follow. Moreover, even if such an experiment were conducted by a person whose experience fitted him to conduct it, it would still be inconclusive as to the question at issue—the effect of small amounts of baking-powder products as taken in actual practice. Experiments with the chemical residuum of baking-powders may be inferential, but they can not fairly be considered proofs. (535, 536.)

Professor Austen states that, being empowered to undertake an experimental investigation of the effect of food prepared with alum baking powder upon the human system, he engaged Prof. Austin Flint, one of the most distinguished living physiologists, and Dr. E. E. Smith, a former assistant of Professor Chittenden, of Yale College, to conduct the actual experiments. As a standard of comparison, normal or control bread, a bread made with hydrochloric acid and bicarbonate of soda, carefully weighed out in their proper proportions, was fixed upon. Such a bread contains no residuum from the leavening substance except common salt. This bread and also a bread made with a common brand of alum baking powder bought in the market were very carefully made by Dr. Smith himself and reduced to crumbs and sampled, so that the material might show an even composition. The first experiment was made with artificial digestion, by means of a solution of hydrochloric acid and pepsin. The result showed practically no difference between the action of the control bread and that of the alum baking-powder bread.

The next experiment was made upon human beings. Persons were got into a proper normal condition and were then fed with a diet of determined composition, consisting of the breads under consideration and meat, milk, butter, and water. The feces and urine were collected and analyzed. No appreciable difference was found between the effects of the alum bread and those of the control bread. The per cent of available nitrogen in the feces from the alum bread was 90.8 per cent; from the control bread, 90 per cent.

The next set of experiments was to ascertain the influence of the bread made with alum baking powder upon the secretion of the gastric juice. Several men, young doctors or medical students, were given each 60 grains of one bread or the other and a certain amount of water in the morning, without any other food. Exactly an hour afterwards their stomach contents were pumped out and analyzed. There was no appreciable difference between the influence of the control bread and the influence of the alum baking powder bread on the secretion of the gastric

juice. Dr. Smith summed up the results of these experiments as follows: "In the experiments, the results of which are here briefly outlined, no difference was manifest in the influence on the digestive process of the Layton (alum) bread and the control bread. So far as has been observed, then, the residue resulting from the use of Layton alum powder has not diminished the digestibility of the food product or interfered with the digestive process."

Dr. Austen mentions as a matter of importance that the persons upon whom these experiments were made did not know what bread they were eating. In this way the influence of suggestion was avoided. (539, 540.)

Professor Austen says that he and Prof. Austin Flint and Dr. Smith "have been absolutely unable to find, by the most carefully and exactly conducted chemico-physiological experiments, the slightest difference between control bread free from residuum except salt and the bread made with alum baking powder." His conclusion is, therefore, that the use of alum baking powder in the preparation of food is absolutely uninjurious and wholesome. It is true that bread, like any food product, may be improperly prepared; but bread and similar products are, as a rule, fairly well made, and if they were not, any evil results which might follow defective preparation should not be attributed to the materials. (541, 543.)

Dr. Austen states that he has submitted to many eminent physicians the questions whether they have ever had a patient whose diseased condition of the digestive system could be attributed, either wholly or in part, to the use of alum baking powder in food, and whether they have ever been led to attribute any functional disorders or diseased conditions to the use of alum baking powder in food. He has not been able to get from the most eminent physicians in New York and several other cities an opinion that anyone has ever observed any functional disturbance which could be traced to the use of alum baking powders. (538, 541.)

Mr. DELAFONTAINE has examined bread and cakes made with baking powder, and never detected any residuum injurious to health, unless the sodium sulphate resulting from the decomposition of the alum products or the product resulting from decomposition of the cream of tartar products be injurious; and there is so little that it does not amount to anything. Alum is sometimes prescribed as an astringent in doses of from 10 to 20 grains. If in a baking powder containing 40 per cent of crystallized alum 1 per cent should escape decomposition, there would be less than 1 grain in the loaf of bread. The smoking of a cigar sometimes is worse than the amount of alum or cream of tartar which may escape decomposition in baking. The great outcry against this or that baking powder is more for advertising purposes than in the interest of public health. Mr. Delafontaine thinks that as the two kinds are manufactured now the honors are even between them as regards healthfulness. He admits that cream of tartar occurs in grapes, while alum does not occur in any natural food, but says cream of tartar has some poisonous properties, potassium salts being poisonous. Tartaric acid in cream of tartar is a poison, but it takes a very large dose of cream of tartar or tartaric acid to kill a person. (230, 232.)

Mr. MURRAY uses alum in making baking powders, and thinks it just as good and healthful as cream of tartar if properly neutralized. (67.)

Mr. PETRAENS, a chemist, says that he is convinced after an investigation of alum baking powder that it is not deleterious to the public health, and that it is really the most perfect baking powder in the market, because its residuum is smaller than that of any other. The baking powders of commerce are generally a mixture of, say, 75 per cent of an alum powder and 25 per cent of a phosphate powder. The alum part, or 75 per cent of the baking powder, will produce about 22 per cent of sodium sulphate and about $3\frac{1}{4}$ per cent of alumina oxid. There is no danger that any alum will remain in the bread after baking, because the alum will rapidly be decomposed by the soda under heat of the oven. Mr. Petraens says that alum baking powder is an excellent leavener, because the burnt alum is insoluble in cold water, and the powder therefore generates gas very slightly before it is heated. The baker is enabled to do his kneading slowly and thoroughly, and a more wholesome food is produced than when it is necessary to hurry the dough into the oven. (292, 293.)

2. *Wholesomeness doubtful.*—Professor DE SCHWEINITZ, a chemist and bacteriologist of the Department of Agriculture, says that so far as physiological experiments go there has been practically no evidence to show that alum in baking powder does any harm. The case is perhaps parallel to that of borax and boracic acid. The work done from the physiological standpoint has proved as conclusively as such work can prove that borax and boracic acid are perfectly harmless. Yet one would not recommend their use. Theoretically alum in baking powder may be said to be injurious. The burden of proof lies on the side of those who favor the use of it. (614.)

Professor MUNROE says the salts of alum are well known to be poisonous in large doses. If a substance which is poisonous in large amounts is proposed as an article of food, those who introduce it should be subject to the burden of proof that it is not injurious in moderate and repeated doses. (608, 609.)

Dr. MEW says sodium sulphate in very small quantities retards artificial digestion in the test tubes in the laboratory. It may possibly produce injurious effects in the stomach. Since there are possibilities, perhaps probabilities, of some harm being done, it is better to use the tartrate powders. The discussion of the subject is largely hypothetical. The physiological test is the ultimate analysis, and there has been very little physiological work done on the problem. In the Army no alum baking powder has ever been used. (612, 618.)

Dr. WOODWARD, health officer of the District of Columbia and former coroner, has never seen or heard of any specific case in which injurious effects have been traced to the use of alum in bread or in baking powder. Any astringent, like alum, diminishes the secretion of any mucous membrane, such as the lining of the stomach, and therefore interferes with digestion. The use of alum itself as an ingredient of food should be forbidden.

The purpose of the manufacturers of alum baking powder is that no alum as such shall exist in the bread. Statements about the effects of alum do not, therefore, necessarily apply, although through the careless manufacture of such baking powders alum may possibly appear in the bread. The statement that substances which are not natural constituents of organic bodies are injurious is, of course, a matter of theoretical reasoning. The most that can be said is that the burden of proof should be on the advocate of the use of such substances. But since there are materials for baking powder that are free from this objection, it would seem that steps should be taken either to secure evidence of the harmlessness of alum powders or to forbid the use of them. (610, 611.)

Professor HALLBERG says the question whether or not alum is an irritant poison has not yet been entirely settled. (81.)

Dr. CRAMPTON, chief of the division of chemistry in the office of the Commissioner of Internal Revenue, states his conclusions as follows:

"From the various evidence that has been produced on both sides of the question I think the following conclusions may be safely drawn:

"(1) That form of alum powder in which sufficient phosphate is added to combine with all the aluminum present is a better form and less apt to bring alum into the system than where alum alone is used.

"(2) It must be expected that small quantities, at least, of alum will be absorbed by the digestive fluids where any form of powder containing it is used.

"(3) Whether the absorption of small quantities of alum into the human system would be productive of serious effects is still an open question and one that careful physiological experiment alone can decide." (624.)

3. Injurious effects affirmed.—Dr. WILEY says alum is an irritant and to some extent an antiseptic, tending to paralyze the ferments of digestion. It is poison in the sense of being an irritant, but not to so great an extent as many irritants. Its presence in food is very reprehensible, even in small quantities. Many stomachs can take a little alum without harm, but its presence should always be marked and known. He would not use alum in bread if he knew it. (46, 588.)

Professor VAUGHAN, dean of the medical faculty of the University of Michigan, says the question regarding baking powder is not altogether whether it is a poisonous substance or not, but also whether the bread made from it is good bread. He is quite positive that the alum baking powders should be condemned for the following reasons: (1) The action of the alum on the bicarbonate of soda is irregular and uncertain. No chemist can mix these substances in such proportions that they will give off a definite amount of carbonic-acid gas under all conditions, and consequently the bread will vary with the conditions of temperature, amount of water, kind of dough, etc., and is liable to be inferior. (2) The alum works upon the bicarbonate of soda so slowly and imperfectly that in a great many cases a residue of alum is left unchanged. Alum in large doses is seriously harmful, and even in small quantities it is an astringent and interferes with the secretion of the gastric juices, and is therefore injurious, especially when taken two or three times a day for a long period. (3) Even when the alum undergoes decomposition it forms either phosphate of aluminum or hydrate of aluminum, or both, and both of these are soluble to some extent in the gastric juices and are soluble in albuminous substances. They are harmful even in small quantities. (202, 205, 206.)

Professor FAIRHURST thinks the occurrence of hydrate of alumina in bread injurious to health. Alumina is not a constituent of the body, and its compounds, when taken in the blood, are simply foreign substances which must be

eliminated by the kidneys. Extra work is thus thrown upon the kidneys, and disease of them may possibly result. (620.)

Dr. JOHN C. WISE, medical inspector, United States Navy, writes the chairman of the committee (1) that alum baking powders produce a heavier and more indigestible bread than those made of tartrate of potash; (2) that the injurious effect of alum on the mucous coat of the stomach is not disputed, alum being both an irritant and an astringent, interfering seriously with the secretion of the digestive juices. (627.)

Dr. WILLIAM W. JOHNSTON, of Washington, says alum is used in medical practice to contract the blood vessels of the alimentary canal and to diminish the secretions. This effect necessarily interferes with digestion when produced in a man in health, and its long continuance would undoubtedly produce disease. The chemists assert that when alum is used in bread making its action is uncertain, and that a certain amount of it often remains unchanged. If this is a fact, Dr. Johnston says there can be no question of its deleterious influence. (225, 226.)

Professor MOTT prefaces the account of his experiments in the use of alum baking powders with this remark: "It hardly seems necessary for any experiments on animals to decide a question of this nature so that the use of alum baking powders can be condemned, for a thorough scientific investigation of the subject can lead to no other conclusion." Though fully believing that experiments were unnecessary to determine this question in a sense hostile to the use of alum baking powder, Professor Mott thought it advisable to perform some experiments, in view of the fact that Professor Patrick, of Missouri, had conducted some experiments which he thought sustained the opposite opinion.

Professor Mott's first experiment consisted in the feeding of dogs with biscuits containing very large amounts of alum baking powder, in some cases 20 teaspoonfuls to the quart of flour, and in some cases 10 teaspoonfuls to the quart. These doses were followed by nausea and vomiting, extreme constipation, and a condition of general sickness and debility. Dogs fed with biscuits containing 20 teaspoonfuls of cream-of-tartar baking powder to the quart of flour showed no signs of sickness, though in one case the administration of the food was continued four days. Professor Mott's conclusion is that these experiments clearly demonstrate that the salts left in biscuits when a cream of tartar baking powder is used are perfectly harmless, but when an alum baking powder is used are very dangerous. (628-630.)

Professor Mott administered to dogs hydrate of alumina, mixed with meat, in doses of from 1 ounce to 4 ounces of precipitated hydrate, containing seven-eighths of its weight of abnormal water. Nausea, vomiting, and constipation followed, with weakness of the limbs, loss of ambition, and dulling of the eyes. Phosphate of alumina, containing three-fourths of its weight of abnormal water, administered in a dose of 8 ounces, followed by a dose of 2 ounces the next morning, produced a diminution of activity, dimming of the eyes, and an appearance of sickness, but no vomiting. Alum mixed with meat produced the same results as the hydrate of alumina.

After feeding dogs with hydrate of alumina mixed with meat, and after also injecting a solution of hydrate of alumina directly into the stomach, Professor Mott found alumina in the blood, kidney, heart, spleen, and liver. The stomach and the duodenum were found congested.

One dog was fed with phosphate of alumina in quantities not stated. The stomach and the duodenum were found much congested after death, and considerable amounts of alumina were found in the spleen, liver, and heart.

In the only case in which the details of the administration of the hydrate of alumina are given, the dog was fed with 5 ounces of precipitated hydrate of alumina mixed with 2 ounces of meat. He ate only one-third of the mixture. This was followed up with five injections of hydrate of alumina directly into the stomach, the first dose being one-twentieth of an ounce, the last one-fourth of an ounce, and each of the other doses 1 ounce. The dog which took phosphate of alumina received 5 ounces of the precipitated phosphate (containing much water) mixed with meat.

From these experiments Professor Mott concludes that both hydrate of alumina and phosphate of alumina, when introduced into the stomach, are "sure to produce acute inflammation." (630-635.)

Professor Mott performed experiments in artificial digestion with gastric juice obtained from dogs, from which he concludes that both hydrate of alumina and alum check the digestive operation of the gastric juice, rendering it incapable of dissolving even the most digestible substances and entirely destroying its power of dissolving the more indigestible substances, such as boiled white of egg. Though the experiments of which he gives detailed reports were all made with

alum or with hydrate of alumina, he states in general terms that experiments were made with phosphate of alumina and basic sulphate of alumina, and that his experiments show that all alumina salts render the pepsin inactive and interfere with the powers of digestion. (632, 633.)

Professor Mott presented a letter from Dr. E. S. Wayne, of Cincinnati, Ohio, dated April 10, 1879, in which Dr. Wayne states that a Mr. Edwards and his wife and children were all made sick by eating cakes made with alum baking powder. They thought they had been poisoned with arsenic. Dr. Wayne examined the cakes and the powder and found nothing but alum. Dr. Wayne states that he has also known of another similar case. (636.)

Professor Mott expresses the opinion that a person who eats 1 biscuit made with alum baking powder will suffer from the alumina salts present in it. He adds: "It is certain that persons continually eating biscuits made with an alum baking powder will suffer from its poisonous effects, as the alumina salts, instead of passing out of the system, accumulate in the various organs, interfering with their proper functions." (636.)

Assistant Surgeon FREEMAN, of the United States Navy, believes that the continued use of alum baking powder will produce chronic indigestion. (619, 620.)

Dr. STRINGFIELD, a specialist in diseases of the digestive tract, testifies that alum, a double sulphate of aluminum and soda, is an irritant poison, cumulative in its effects. It impairs nutrition, retards digestion both in the stomach and in the intestines, and produces dyspepsia, indigestion, and constipation. It is also a positive irritant of the kidneys, through which it is excreted. It undergoes change in the stomach, liberating carbonic-acid gas and forming a phosphate or hydrate of aluminum. The hydrates or phosphates formed are moderately soluble in the gastric juice.

Dr. Stringfield has concluded from his observation that the great majority of cases of difficulty with the digestive tract may be traced to the white bread and the quick hot breads that are made with baking powder. The daily and continuous use of alum is not only harmful, but positively poisonous. (548, 549.)

Dr. WEBER says that the unpalatable taste of food prepared with alum baking powder is due to sodium sulphate or Glauber's salts, which is extremely bitter. Besides the matter of taste, this has the disadvantage that all unpalatable food interferes with digestion by checking the secretion of the gastric fluids. (606.)

Upon treating aluminum hydroxide and aluminum phosphate with an artificial gastric juice prepared with hydrochloric acid and pepsin, Professor MALLET found that a part of the aluminum was dissolved by the acid liquid and a part of the organic matter used as pepsin was rendered insoluble. Both of these effects are regarded by Professor Mallet as tending to indicate and to explain an interference with natural digestion by aluminum compounds taken into the stomach. The hydrochloric acid of the gastric juice, being partly charged with the aluminum, would have less power of dissolving the nutritious substances of food, and the precipitation of pepsin in an insoluble form would also interfere with the digestive process. Professor Mallet believes that soluble organic matters contained in food might also be rendered insoluble in the same manner as the pepsin. (564, 565.)

Professor Mallet gives an account of a series of experiments upon his own person to determine the physiological effects of hydroxide and phosphate of aluminum, which are the principal residual substances left in bread by the use of alum baking powders. A weighed quantity of one or the other was taken, either with or a few minutes before a regular meal. The experiments were made with intervals of three or four days between them. There was no preexisting digestive derangement, and as much care as possible was taken to avoid any mere fancying of expected symptoms. The quantity of aluminum hydroxide taken at one time varied from 10 to 50 grains, and the average was about 28 grains. The quantity of aluminum phosphate taken at a time varied from 10 to 100 grains, and the average was 45 grains. These doses were intentionally made larger than quantities of the aluminum compounds which might probably be received at once in eating bread made with alum baking powder. The object was to determine with what doses distinct effects were noticeable. Distinct effects seemed generally to appear when the dose was not less than 20 grains of the hydroxide or not less than 30 or 40 grains of the phosphate. Bread made of the ordinary alum baking powders might be expected to contain about 13 or 14 grains of aluminum hydroxide to the pound of bread if alum alone were used in making the powder, or about 20 or 21 grains of aluminum phosphate to the pound of bread if alum and calcium acid phosphate were used together and all the aluminum were left in the bread as phosphate.

On two or three occasions, particularly with the smallest doses, there was no clearly observable effect. The general tenor of the experiments, however, con-

vinced Professor Mallet that the aluminum compounds had an inhibitory effect on gastric digestion, and in some cases, particularly with the larger doses, interference with digestion was very noticeable. The effect of the hydroxide was greater than that of the phosphate for equal weights. There was no gastric pain or other symptom, or intestinal irritation, but simply the oppressive sensations of indigestion, properly so called. The symptoms generally lasted 2 or 3 hours after taking the food. Professor Mallet believes that a considerably less quantity of the compounds than would be necessary to produce decided discomfort when once administered might prove objectionable and injurious when habitually taken as a part of the bread of each daily meal. (562, 563.)

Professor Mallet sums up his conclusions from his experiments upon alum baking powders and their residua in the following terms:

"(a) The greater part of the alum baking powders in the American market are made with alum, the acid phosphate of calcium, bicarbonate of sodium, and starch.

"(b) These powders, as found in retail trade, give off very different proportions of carbonic-acid gas, and therefore require to be used in different proportion with the same quantity of flour, some of the inferior powders in largely increased amount to produce the requisite porosity in bread.

"(c) In these powders there is generally present an excess of the alkaline ingredient, but this excess varies in amount, and there is sometimes found, on the contrary, an excess of acid material.

"(d) On moistening with water these powders, even when containing an excess of alkaline material, yield small quantities of aluminum and calcium in a soluble condition.

"(e) As a consequence of the common employment of calcium acid phosphate along with alum in the manufacture of baking powders, these, after use in bread making, leave at any rate most of their aluminum in the form of phosphate. When alum alone is used the phosphate is replaced by hydroxide.

"(f) The temperature to which the interior of bread is exposed in baking does not exceed 212° F.

"(g) At the temperature of 212° F. neither the 'water of combination' of aluminum hydroxide nor the whole of the associated water of either this or the phosphate is removed in baking bread containing these substances as residues from baking powder.

"(h) In doses not very greatly exceeding such quantities as may be derived from bread as commonly used, aluminum hydroxide and phosphate produce, or produced in experiments upon myself, an inhibitory effect upon gastric digestion.

"(i) This effect is probably a consequence of the fact that a part of the aluminum unites with the acid of the gastric juice and is taken up into solution, while at the same time the remainder of the aluminum hydroxide or phosphate throws down in insoluble form the organic substance constituting the peptic ferment.

"(k) Partial precipitation in insoluble form of some of the organic matter of food may probably also be brought about by the presence of the aluminum compounds in question.

"(l) From the general nature of the results obtained, the conclusion may fairly be deduced that not only alum itself, but the residues which its use in baking powder leaves in bread, can not be viewed as harmless, but must be ranked as objectionable, and should be avoided when the object aimed at is the production of wholesome bread." (565, 566.)

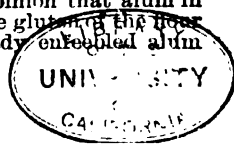
Regarding Professor Mallet's conclusions, Dr. CRAMPTON, chief of the division of chemistry in the office of the Commissioner of Internal Revenue, says: "I may say that most of those based upon purely chemical work I can indorse, having confirmed many in my own work; but I think the evidence furnished by his physiological work is hardly sufficient to justify his conclusions as to the harmfulness of such powders." (624.)

Surgeon-General VAN REYPEN, of the United States Navy, says that the alums in baking powder are unquestionably injurious to the digestive system and produce chronic dyspepsia. (615.)

Supervising Surgeon-General WYMAN, of the Marine-Hospital Service, bases the opinion that alum should not be used in food products, such as baking powder, upon the fact that alum applied locally to a mucous membrane is astringent and irritant. He says that alum baking powder is not issued by the Marine-Hospital Service. (616.)

Professor APPLETON, of Brown University, believes that the use of alum baking powder results in painful and serious disturbances of digestion. (619.)

Professor TUCKER, of the Albany Medical College, is of opinion that alum in bread making or in baking powder is injurious, hardening the glutinous part of the food and retarding digestion. In those whose digestion is already enfeebled alum preparations may cause grave disorders. (618.)



Medical Inspector PRICE, of the United States Navy, thinks that the daily use of alum, even in small quantities, would have an injurious astringent effect, and that cream of tartar is comparatively harmless. (619.)

Surgeon-General STERNBERG and Deputy Surgeon-General SMART, of the United States Army, say that while the injurious effect of the residua of alum baking powder is a matter of dispute, and while it is difficult to connect dyspepsia in the human subject with the use of alum baking powder, many laboratory experiments support the view that digestion is impaired by the presence in the stomach of the substances formed during the decomposition of alum. They consider that the public welfare would be improved by the exclusion of alum from all bread-making materials. No alum baking powder is furnished to the Army. (607.)

Dr. CUTHBERT has given no particular attention to the subject, but from the consensus of opinion of medical men his judgment is that the continued administration of alum is harmful. (609, 610.)

Mr. THURBER states that the firm with which he was formerly connected was a considerable manufacturer of baking powders, and was under great temptation to make an alum powder on account of the cheapness of the material. It investigated the subject as carefully as it could with this in view. It came to the conclusion that while the use of a single loaf of bread made with alum powder might not produce noticeably bad effects, "the cumulative effects of mineral substances like alumina would in time be very deleterious." (581.)

Dr. KERR, formerly health officer of Chicago, is satisfied, from analyses presented for his inspection and from the results upon the human system which have been brought to his attention, that alum in food stuffs, particularly in baking powders, is deleterious to health. It impairs digestion, produces many digestive disorders, causes constipation, and impairs the action of the kidneys and bladder. He regards it as an insidious cumulative poison, and believes that continued use will eventually become a menace to life itself. (605.)

Dr. FLEMING, a physician, regards the use of alum in baking powder or otherwise in baked foods as injurious in several ways. It hardens the gluten of flour, impairs digestion, and induces constipation. Excessive use of it produces visceral inflammation and enteritis. It also produces functional derangement of the kidneys and bladder. (604.)

Professor CORNWALL, of Princeton University, regards alum in baking powder as objectionable on the ground that under certain conditions it may exert an injurious effect on the digestion. "The effects may not be very marked in the case of any individual consumer, but that they can be induced to a greater or less extent seems to be well established." (618.)

Dr. MCMURTRIE says that the healthfulness of alum in food has been carefully considered by various governmental and State authorities, boards of health, and food commissioners, and that such authorities have never indorsed the use of it. Dr. McMurtrie says that the various organs of the body perform their functions largely by diffusion, and when the aluminum compounds are subjected to dialyzing membrane and the aluminum is left behind. Because of the difficult diffusibility of the compounds they will not pass through the organs as rapidly as other substances, and the repeated periodical injection of them would produce an accumulation which would interfere seriously with the functions of the organs.

Dr. McMurtrie says that it is stated by Professor Kobert, of Dorpat, Germany, that alumina compounds in the blood, practically irrespective of the combination in which they are found there, produce distinctly poisonous effects; that these alumina compounds when taken into the system may be found in the principal organs, as the liver, the spleen, the kidneys, and even the brain. Dr. Kobert is further said to have shown that the poisonous action of the alumina compounds is very slow, and that intense nervous disturbance may ultimately occur, though no symptoms are observed for several days after the compounds are introduced into the blood. (597, 598, 601.)

Dr. JOSEPH TABER JOHNSON, a physician, speaking of alum itself, says that if it were introduced into the system in bread or baking powder it would interfere with digestion. Even a small dose used continuously would be dangerous. (615.)

J. Other uses of alum (see also *Pickles*, p. 66).—1. *To whiten bread*.—Dr. WILEY says alum is sometimes used in bread making, where yeast is used, to whiten bread. (46.)

Dr. STRINGFIELD says alum is commonly used to improve the appearance of bread; principally by bakers. (549.)

Dr. CRAMPTON, in discussing the use of alum by bakers to improve the appearance of bread, quotes one authority who says: "The influence of alum on health, in the small quantities in which it is usually added to bread, is very problematical, and rests upon theory more than observation." Another authority says: "Whether

there be sufficient foundation for the statements made respecting the injurious effects of alumed bread on the system is still an open question." Another, however, says that when it is used "a large portion of the gluten and other valuable constituents of the flour are never properly dissolved, but pass through the alimentary canal without affording any nourishment whatever." (622, 623.)

Mr. PETRAENS says that bakers have often used a very inferior flour and added alum to improve the appearance of the bread. The quantity of alum is too small to do any harm. The real harm consists in using wormy and poor flour and passing it upon the public as a good article. (292.)

2. *In the filtration of water.*—Professor AUSTEN says that alum is used on a large scale in the filtration of water. It combines with the dissolved bicarbonate of lime, producing carbonic acid gas and gelatinous hydrate of alumina. The latter substance is precipitated and gathers the fine suspended matter, forming with it masses large enough to be removed by a sand filter bed. This process is used in Atlanta, in Kansas City, and many other places throughout the country. It would be unlawful under the terms of a law which should forbid the use of alum in the preparation of food. (533, 534.)

Professor MALLET regards the use of alum in purifying water as of doubtful wisdom. He would hesitate to use water treated with alum in the proportion in which it is generally used. He was about to recommend to the city of Richmond, Va., to substitute salts of iron for salts of aluminum for this purpose. Yet the quantity of alum so used is very minute—not more than one or two grains and often only a fraction of a grain to a gallon of water, and this is intended to be precipitated. Even if the whole amount remained in the water, it would be less than is used in alum baking powders. (555.)

K. *Use of alum prohibited in European countries.*—Dr. MCMURTRIE, consulting chemist of the Royal Baking Powder Company, says that the use of alum in food, in any form and in any quantity, is absolutely prohibited in England, France, and Germany. (600.)

Dr. CRAMPTON, chief of the division of chemistry in the Treasury Department, says: "For a proper understanding of the alum question it is necessary to explain that the use of alum in bread making is prohibited in countries having food-adulteration laws, such as England and France. This is partly on account of its injurious effect upon the system, but principally because of its peculiar action, not yet well understood, in improving the color and appearance of the bread to which it has been added, so that a flour of inferior grade, or even partially spoiled, may be used to make bread which will look as well, to all appearances, as bread made from much better grades." (622.) (See also *State laws*, p. 110.)

L. *Proposed legislation.*—1. *Labeling.*—Dr. WILEY says all baking powders should be marked to show their constitution, whether cream of tartar, acid phosphate, or alum baking powder. He would not say that alum powder should be absolutely prohibited. (47.)

Professor MITCHELL, chemist to the dairy and food commission and the State board of health of Wisconsin, thinks that at least the public should be plainly informed when baking powder contains alum. If one has a prejudice against using these astringents he should have the right to be protected. Aside from the question of wholesomeness, he considers the desirability of labeling alum baking powders "alum" undoubted, because a fraud is committed in selling the cheaper substances for the more expensive ones. (107-109.)

Professor PRESCOTT is inclined to think that any baking powder other than that made by mixing cream of tartar and bicarbonate of soda and a due quantity of filling should have its composition announced on the package; at any rate, he is very sure that any baking powder containing alum, if allowed to be sold, should have the presence of the alum clearly stated. (196, 197.)

Mr. REW, vice-president of the Calumet Baking Powder Company, considers it just that all products should be labeled to show what they contain, and the public informed of the chemical action which takes place. In labeling baking powder the most just way would be to require the manufacturer to print upon his label the names and amounts of substances left in the food, so that the consumer might know that when he takes foods prepared with cream of tartar baking powder he is taking seidlitz powder, and that when he takes foods prepared with alum baking powder, he does not get any alum, but gets Glauber's salts (sulphate of soda). (88.)

Mr. MARC DELAFONTAINE, a chemist, says requiring the formula to be printed on the label would be all right if people were well educated and understood the chemical changes, but so long as they are not, they are frightened by the word alum. The label might give the formula or the contents in a general way, and then the maker might state that there is nothing injurious in the use of the substance. (230, 231.)

Professor EATON, formerly chemist to the Minnesota dairy food commission, advises that all baking powders be labeled with the minimum percentage of gas they are calculated to evolve, after the manner of laws on this subject in the East. He would not put the formula on the label, because he believes the formula to be the property of the inventor; but he would label the various classes of baking powder with the class to which they belong, whether alum, alum phosphate, cream of tartar, or pure phosphate, all of which differ in the residuum which they leave in the bread. He hardly thinks it fair to require a label, "This powder contains alum," as is done by Minnesota, Wisconsin, and several other States, at least until the fact that alum is positively injurious is established, because it conveys to the purchaser the impression that it is harmful and inferior. If it is injurious, it should be prohibited, and if not, it should be given the same right as any other class of powder. (236.)

2. *Prohibition of alum powder.*—Dr. PRESCOTT, in a statement submitted in January, 1900, refers to his earlier testimony, in which he expressed the opinion that if alum baking powder were allowed to be sold, the presence of alum should be clearly stated on the package, and said that in his present judgment the sale of baking powders or other articles of food containing alum should be prohibited. (625.)

Assistant Surgeon FREEMAN, U. S. N., believes that the use of alum baking powder and the use of alum by bakers should be prohibited by law. (620.)

Dr. JOHNSTON unqualifiedly unites with those who ask for the prohibition of the use of alum baking powder. (626.)

Dr. WISE desires the prohibition of the use of alum in any article of food. (627.)

Professor FAIRHURST thinks the use of alum in baking powder should be prohibited by law. (620.)

Dr. KERR would favor making the use of alum in baking powder a felony, punishable by fine and imprisonment. (605.)

Dr. APPLETON believes that the manufacture and sale of alum baking powders should be prohibited. (619.)

M. Bread without baking powder.—1. *Fermentation.*—Professor MUNROE, of the Columbian University, is of opinion that the most wholesome method of converting flour into bread is by the process of fermentation. (608.)

2. *Saleratus.*—Mr. REW says that in the preparation of soda biscuits the cook uses a uniform quantity of saleratus baking soda and an indefinite quantity of sour milk, which may be at one time very acid and at another time weakly acid. If she uses more soda than her sour milk will take care of, the biscuits are yellow. If she uses too little soda or too much milk, the biscuits are white and bleached. In using baking powder prepared on chemical lines the residue is the same, whether 2 teaspoonfuls or 1 be used to a quart of flour. (105.)

IV. BUTTER, OLEOMARGARINE, AND OTHER ANIMAL PRODUCTS.

A. *Renovated or process butter.*—Mr. NORTH says that the making of process butter consists in the "rendering" of dairy butter at a temperature of from 110° to 130°, washing it with water, and so obtaining a neutral oil, and churning the resulting fat with milk or cream to give a flavor. This flavor is "not a component part of the mass, and in consequence it goes away in the air. You buy butter to-day and it has this flavor; to-morrow it is gone. Some makers make it so that it lasts a week, others so that it will last only until to-morrow."

Mr. CRACKÉ, deputy commissioner of agriculture of the State of New York, says that the law of that State requires such butter to be labeled in large letters, "Renovated butter." (479, 480.)

Mr. DUFF, chemist of the New York Produce Exchange, says that all classes of butter, irrespective of condition, are collected and remelted at as low a temperature as possible and then re churned with milk. The butter is washed, the rancid acid is largely eliminated, and the re churning brings back the natural texture and appearance as far as possible. The product is called renovated butter. It is not detrimental to health, but it is a fraud. (498.)

Mr. C. Y. KNIGHT says new process butter is made from farmers' butter by taking out the brine, the casein, and other matter which may have become tainted or stale, and replacing it. The butter is taken to factories, melted down, salted, the water precipitated, and re churned in an emulsion of skimmed milk, as oleomargarine is churned to give it the butter flavor, the flavor of butter being in the casein. The different makers of process butter have different systems. No chemicals are used. Mr. Knight has had a number of samples of this process butter analyzed, and, so far as the component parts are concerned, it has been called pure butter; but it can be detected under the microscope from the fact that the fats are emulsified. (170.)

Mr. STERNE says butter which is green and moldy, blue and white, and all sorts of colors, is picked up on the street at the lowest price, melted down and settled in a kettle, put through a soda process, rewashed, handed out onto a table through ice water, put through a worker, recolored, resalted, and sold. He has examined it on Water street, where it is known as imitation creamery. It contains alkali from the use of soda, and is absolutely unfit for anything except to settle salt. Mr. Sterne says he knows of a number of firms supposed to be in the business of washing gangrened butter. (221, 226.)

Mr. Sterne says grease butter has rarely been below 9 cents a pound, because washers take it and work it over and put it on the street as butter for food to the extent of thousands of tons a year. Mr. Sterne states, as the result of observation, that sal soda and salicylic acid are used in its preparation. (227.)

B. Oleomargarine.—1. *Ingredients and process of manufacture.*—Dr. WILEY has found that other fats, both animal and vegetable, including mixtures of cotton-seed oil and beef fat, and sometimes a high grade of pork fat, have been substituted for butter fat, and that these compounds were often sold as pure butter before the passage of the oleomargarine act, which compelled the stamping and branding of such packages. He thinks that where the act has been enforced it has protected the public and the farmers against fraudulent adulterations. (13.)

Professor MITCHELL says oleo oil is extracted from beef stearin and mixed with neutral lard to make butter imitations. Some years ago there was butterine with considerable actual butter in it, but now there are very small percentages of butter. Butterine with butter in it would cost considerably more than that made of cheap oils. (126.)

Mr. STERNE, a commission merchant of Chicago, formerly in the oleomargarine business, says the manufacture of oleomargarine was begun in this country in 1879, and it is made to-day almost exactly as it was at that time, out of the purest fats; it has no adulteration in it whatever. Ever since the beginning of its manufacture it has been known as a compound of beef fat and lard, sometimes with cotton-seed oil. The hog product gives the grain. It was formerly adulterated with butter, but so little pure butter could be bought that the manufacturers had to go back to cream, and no oleomargarine maker now uses any butter. The fats from the bullock are cooked, and the tallow element withdrawn by a mechanical process, leaving butter fat, absolutely the same as that produced from the milk, as far as chemistry has been able to determine, and far superior for the reason that there is no deterioration, while butter begins to deteriorate at once. Every butter man who takes an exhibit to a fair insists upon judgment within twenty-four hours. Oleomargarine makers churn cream with the butter fat to give it the aroma caused by the action of the bacteria in milk. Rich cream is used; it is guaranteed in the contracts to produce 20 pounds of butter to the hundred pounds of cream. Mr. Sterne quotes the official chemists of the Austrian Government as saying that the only germs ever present in oleomargarine are those common to air and water, and that the product is especially liable to contamination because the best process of manufacture fails to eliminate all the lactic-acid ferment.

Mr. Sterne believes that oleomargarine has never had an adulterant. It has never had a chance to be fairly known, because of the objectionable articles in the press and in the dairy papers. He says the difference in the grades of oleomargarine is due to the quantity of milk and cream churned with it, the proportions of fats being nearly always the same. (221-228.)

Mr. Sterne buys materials for oleomargarine makers, and he wishes "to emphasize the strict examination and purity that is required, not only by the manufacturer of the raw material, but by the manufacturer of the finished product, in all materials which go into butterine." The witness believes that England has as good food laws as any country, and the larger part of the oleomargarine fat and neutral manufactured here is sent to the other side. (341.)

Mr. MILLER, manager of the butterine department of the Armour Packing Company, Kansas City, says that butterine is composed of oleo oil, neutral, butter, cream, milk, and salt. Highly refined cotton-seed oil is sometimes used in limited quantities in the cheapest grades. In the better grades butter is always used.

Oleo oil is made from the caul fat, the richest and choicest fat of the beef. This fat amounts to about 40 pounds to the animal. It is taken out before the animal is skinned, thoroughly washed, and thrown into a vat of ice water, to stand until the following day. Then it is cut up fine and cooked. The fat is cooled and placed in linen cloths, and the oil is extracted in a hydraulic press. The residue in the cloths after pressing is commercially known as stearin. Neutral is the leaf lard of the pig. The leaf, amounting to about 5 or 6 pounds to the pig, is taken out as soon as the animal is killed, thoroughly washed, and put into a freezer for 24 hours. It is then cut into shreds and cooked. Neutral is snowy white, without

taste or odor. Both pigs and cattle are examined by Government inspectors, before and after killing, so that diseased animals are excluded. England, France, Germany, Holland, and other foreign countries where butterine is manufactured more extensively than in the United States depend entirely upon American packers for oleo oil and neutral.

The ingredients of butterine are churned together for 30 minutes in large steel churns. The butterine, which is then in a liquid state, is chilled by passing through ice water, thoroughly worked to get the moisture out, and packed in tubs and cases. The law requires, besides plain marking of the packages, a record of every pound of material used and a record of every sale, giving the amount, and the name and address of the purchaser.

Butterine is colored with Wells-Richardson improved butter color, which is used almost exclusively by every creamery man in the United States. The salt is the celebrated Ashton brand, imported from England. The cream, milk, and butter are the best that can be bought, and especial attention is given to the handling of the cream and milk. All the apparatus used in the manufacture is kept scrupulously clean. All vats, trucks, tables, molds, and floors are thoroughly scrubbed with hot water once or twice a day. Each tub is steamed and scrubbed in hot water before being used. None of the laborers are allowed to use tobacco while at work. (322-324.)

Mr. PIRRUNG, a manufacturer of butterine, states that he buys all his oleo oil and neutral from the packing houses. Oleo oil is obtained from the caul fat of beef, and looks much like yellow butter. It is shipped by the packers in new tierces. The packers never use a secondhand tierce for it. The neutral is made from the leaf of the pig, and is nut-like in taste and positively neutral in odor. These two ingredients are the basis of the oleomargarine or butterine. They are churned in a steel or tin churn, run through cold water, worked in a butter worker, and wrapped in new cloth or parchment-paper packages. The Government prescribes that all oleomargarine must be put up in new wooden packages and branded with the word "Oleomargarine," in letters 1 inch high, with the name and location of the factory and the gross and net weight. The only ingredients are the oleo oil or beef fat, the neutral or pork fat, milk, cream, salt, and coloring. The color is made from the annatto bean. It is a purely vegetable product, and no chemical dyes are used. (313-315.)

Mr. DADIE, general manager of the William J. Moxley Butterine Company, says that this company buys its oleo oil from the packers, but makes it neutral. It formerly used butter in making all grades of butterine, but found it too hard to get butter for the purpose. It now uses milk and cream in the cheaper grades, though butter is still used in the best. Its butterine is colored with the Wells-Richardson improved butter color, which is used by creamery men generally. (325, 326.)

Mr. JELKE, general manager of Braun & Fitts, states that this corporation makes more oleomargarine than any other establishment in America. It does not use any cotton-seed oil. It considers that vegetable oil can not carry the butter flavor. Mr. Jelke believes that all the other butterine manufacturers use more or less cotton-seed oil in the lower grades. It is entirely wholesome. No preservative or chemical of any kind except salt is used in the witness's factory. The wholesomeness of the product is attested by the fact that Mr. Jelke uses it on his own table, and that the men in the factory, who know the whole process of manufacture, use it in their families. (332, 333.)

Mr. POTTER, manager of the butterine department of Swift & Co., and Mr. THOMPSON, manager of the butterine department of the G. H. Hammond Company, give testimony precisely similar to that of other manufacturers with regard to the materials used in the manufacture and the cleanliness of the process. (335, 337.)

Professor MITCHELL knows of no way by which tallow from refuse or from dead animals picked up on the street can be distinguished from the tallow from healthy animals, except by its general odor and appearance. The oils used in the better grade of food products are carefully kept from becoming tainted and rancid. The price of the product is lessened rapidly if tainted oils are used. (127.)

2. *Wholesomeness.*—Dr. WILEY testifies that from a nutritive point of view all the fats and oils used as food have nearly the same value as heat producers. Butter fat has a heat value of a little more than 9,000 calories per gram, while the beef fat of oleomargarine has a slightly higher heat value; but the butter fat is a little more easy of digestion, so that there is practically no difference in the value of the two fats in the human economy. Cotton-seed oil has practically the same heat value as oleomargarine, and is probably a little easier of digestion. Dr. Wiley considers mixtures of animal fats and vegetable oils to be perfectly

wholesome, but objects to the payment of fancy prices by persons in straitened circumstances who suppose they are getting butter when they are not. (14, 16.)

Mr. MARC DELAFONTAINE regards oleomargarine as substantially similar to butter in its chemical constituents, but not identical with butter. He thinks it equally wholesome. The manufacturers are bound to use the very best grades of fats or else the article will not sell. Anything inferior would be either rancid or bad to the taste. He does not think the best butterine equal to the best butter, but says there are grades of butter which are inferior to very good or average butterine. (231.)

Mr. HOBBS, editor of the National Provisioner, says: "In our analyses we find that the legitimate butter compounds are healthy in themselves; that is, they are free from deleterious substances; they are made of animal and vegetable fats—some of them, the best quality of them—and are sold as such." (496.)

Mr. DUFF, chemist of the New York Produce Exchange, regards butterine and oleomargarine, "made from perfectly good material under Government supervision," as legitimate products. (500.)

Professor CHITTENDEN regards the oleomargarine industry as perfectly legitimate, but thinks that oleomargarine should be labeled to show what it really is, and that dealers should be compelled to sell it under its proper name. (423.)

Professor MALLETT says that oleomargarine is a good and wholesome food, and in some cases, as on long sea voyages, it is used in preference to butter. But it ought not to be called butter or sold as such. (556.)

Mr. STERNE read the following extract from the Scientific American:

"In everyday life butter is very essential. Its free use by sufferers from wasting diseases is to be encouraged to the utmost, in so far as it can be borne. All this seems very simple, but, unfortunately, an excess of butter diet, even in a healthy organism, is likely to give rise to butyric dyspepsia, and butyric fermentation is set up largely through the presence of a ferment, a residuum left by the buttermilk.

"Considering the foregoing, it seems strange that oleomargarine has not been thought of as a palatable and suitable article of diet for those suffering from wasting diseases. It is free from all objections, despite the idle and malicious tales spread by parties interested in securing higher prices for inferior and unwholesome products. Were the truth fully realized by all classes, bad butter would find no market; but, unfortunately, the majority of the people have no comprehensive idea as to what oleomargarine practically is.

"The resulting product, as a matter of fact, is a better and purer butter than nine-tenths of the dairy product that is marketed, and one that is far more easily preserved. There are a large number also who imagine that oleomargarine is made from any old scraps of grease, regardless of age or cleanliness, which is quite the reverse of the fact; indeed, a good 'oleo' can only be had by employing the very best and freshest of fat. This 'artificial butter' is as purely wholesome (and perhaps even better as food) as the best dairy or creamery product." (222, 223.)

Mr. MILLER introduced in connection with his testimony opinions said to have been given by Professor Caldwell, of Cornell University; Professor Atwater, of Wesleyan University; Professor Schweitzer, of Missouri State University; Professor Barker, of the University of Pennsylvania; Professor Johnson, of Yale University; Dr. Ames, of the United States Navy, and Professor Jolles, of Vienna. Professor Caldwell says that the process of making butterine, when properly conducted, is cleanly, and that the product possesses no qualities whatever that can make it in the least degree unwholesome. Professor Atwater says that butterine is perfectly wholesome and has a high nutritious value. Professor Schweitzer states that careful physiological experiments reveal no difference whatever in palatability and digestibility between butter and the brand of butterine which he has examined. Professor Barker considers butterine quite as valuable a nutritive agent as butter. Professor Johnson says that for all ordinary and culinary purposes it is the full equivalent of good butter made from cream. He regards the manufacture of oleomargarine as a legitimate and beneficent industry. Professor Jolles says that pure butterine or oleomargarine is as digestible and nutritive as pure butter. Dr. Ames declares that the manufacture of butterine in properly constructed factories is much cleaner than the manufacture of butter, and that he has found the factories at Kansas City nearly perfect in that respect. He says: "It should be more generally used, and not looked upon as an inferior article and makeshift for butter, when it is really superior." (348-350.)

Mr. PIRBUNG, a maker of butterine or oleomargarine, says he has read that 60 per cent of the higher-grade dairy cows of Illinois, such as Holsteins and Jerseys,

have tuberculosis. Every beef cow which goes to any prominent packing house has to pass Government and State inspection. Dairy cows are not inspected in any such way. Beef products, such as go into oleomargarine, are much more likely to be wholesome, in Mr. Pirrung's opinion, than dairy products. It is true that milk is used in oleomargarine, but it is pasteurized. The food commissioners of the several States have never attempted to show that oleomargarine contains anything deleterious. The present food commissioner of Ohio has repeatedly examined the products of Mr. Pirrung's factory, and so have his predecessors. They have said that they would prefer butterine to what they term ordinary butter. Oleomargarine is superior to butter in keeping qualities, partly because all the ingredients are cooked. If it is properly made it can never get rancid, though it may lose its flavor. (314, 816, 339, 340.)

Mr. Pirrung declares that it is utterly impossible to make butterine out of putrid or rancid fats. He defies anyone to say that he has ever seen or even heard of a piece of rancid butterine. And on the other hand, he has heard it stated that rancid butter is absolutely poisonous. Mr. Pirrung asserts that for about eight months in the year butterine sells for more than the average grades of butter. If butterine were as cheap and as ill-made as a large amount of the poor butter on the market it would find no sale. (318, 321.)

Mr. BROADWELL, as a dealer in butter and oleomargarine, says that the finest of creamery butter turns strong in two or three days, as most people keep it in their pantries, and they bring it back and say, "This is oleomargarine." It will not keep even in ice boxes, while a pail of oleomargarine will last a month in warm weather. The cream and butter put into the higher grades of oleomargarine make it sweeter and nicer, but the inferior quality will keep longer; the more cream there is the shorter time it will keep. Dealers are not allowed now to use the word "butterine;" the name was changed to oleomargarine to avoid deception. A certain class of people would not ask outright for oleomargarine. (158-166.)

3. *Sale as butter.*—*a. Affirmed.*—Professor FLEAR states that the sale of oleomargarine as butter was found "pretty common" in Pennsylvania. (529.)

Mr. HOBBS, editor of the National Provisioner, says that there is a disposition on the part of some tradespeople to remove the labels from food products, and even to transfer an article from its own package into another. He has himself visited a place where oleomargarine is put into a butter package and labeled creamery butter. Oleomargarine is a legitimate article of commerce, but an 18-cent article ought not to be sold under the name of a 25-cent article. (495, 496.)

Mr. KNIGHT read circular letters from manufacturers of butterine, one of which offered certain brands "in plain wrappers." Another advised dealers to push the sale of "the only high-grade" butterine, "and build up a reputation for good butter." Another said: "Your profit will be double the amount made from the butter you are now handling, and your butter trade will be more satisfied if you will sell them such butterine as you can buy from me." Another offered butterine of various colors to be selected from a color card, mentioning the difference in the color of butter at different seasons. (146-149.)

Mr. Knight submitted to the committee 4 packages of oleomargarine bought in Chicago stores for creamery butter. The first was not stamped; the second and third were marked oleomargarine, but the marks were concealed by folding; on the fourth the word "oleomargarine" was printed on the inside of the package. (139-141.)

b. Denied.—Mr. CLIFF, at whose store the unmarked package of oleomargarine submitted by Mr. Knight was purchased, says the instructions of the house are that every piece of paper used on oleomargarine shall be plainly marked. If a customer asked for creamery butter, he would not knowingly sell him butterine. He has in his store the Government sign, and the sign "Butterine department." (154, 155.)

Mr. POLLAK, at whose store one of the packages of oleomargarine submitted by Mr. Knight was purchased, says he does not furnish oleomargarine to persons who call for creamery butter. He paid 18 cents a pound for the oleomargarine and sold it for 18 cents a pound. (152.)

Mr. BROADWELL, a dealer in butter, oleomargarine, and cheese, from whom one of the packages of oleomargarine submitted by Mr. Knight was purchased, says he believes that his men put the stamp on the package plainly. He explains his custom with reference to the sale of oleomargarine as follows: "When a man says 'I want strictly A1 pure butter,' we show him pure butter, and if it is good enough for him he buys it. If it is not, we show him something else. If he prefers this oleomargarine in preference to the pure butter, we give him that. We tell him to taste it, and if it suits him he pays us for it, and if it doesn't suit

him he gets out. We have pure butter and butterine also, and if a man will taste of both and prefers this in preference to pure butter, that is what he wants. * * * They don't want any butterine, but if we let them taste of it, and ask them, 'Does that suit you?' they say, 'Yes.' Then they take it home and become steady customers." The oleomargarine is taken out of the original stamped package before the customer's eyes. A man who pays 15 or 18 cents knows what he is getting, because he knows he would have to pay 20 or 25 cents for A1 butter. Some millionaires would buy oleomargarine. (158-166.)

Mr. SOMES, of Chicago, a dealer in butter, eggs, and cheese, says the majority of people come in and want oleomargarine or butterine, but they say "Give me some butter." He thinks the majority of his customers understand that they are getting butterine or oleomargarine. For a long time he stamped his packages all on the outside, and his customers would say, "What is this? I don't want this. Give me another wrapper." They did not want to carry it along the street with a sign on, and to accommodate them it was necessary to put on another wrapper. Then the agents of the butterine people advised him that if he stamped his paper that was all that was required. The majority of people want butterine and do not want a sign on it so that everybody knows they are buying butterine. Witness thinks the reason that they buy it is because it is the only thing they can get that is sweet and good. The price of butterine runs from 15 to 18 cents. (151, 152.)

Mr. STERNE says he has been out of the oleomargarine business for 10 or 12 years, but has had oleomargarine on his table every day since then. In the district where he lives there are 35 grocery stores, every one of which has a butterine or oleomargarine sign. He thinks there is practically no deception in the sale of oleomargarine by retail grocers, though there are some dishonest people in every line of business. Hundreds of people send to the factories for 10-pound packages of oleomargarine, but do not go to the grocery store for fear it will be found out that they are using oleomargarine. (225, 226.)

Mr. PIRRUNG denies that the trade in oleomargarine is a secret trade. He presented samples of cards advertising butterine, of one of which he asserted that more than 5,000,000 had been printed and circulated in the United States, and of another of which 2,000,000 had been used within the past year. Fabulous amounts have been spent, according to Mr. Pirrung, to advertise this product and bring it prominently before the people of the United States. (319, 320.)

Mr. Pirrung declares that he does not know of a single instance in which a consumer has himself charged that butterine has been sold fraudulently for butter. The charge has always been brought by persons selfishly interested in destroying the manufacture and sale of oleomargarine. (338.)

Mr. DADIE says that this company has devoted a great deal of attention to advertising its products. It has distributed probably 500 large posters in Chicago alone, saying, "Ask your grocer for Moxley's high-grade butterine." These posters are about 10 or 20 feet in size. Every package of butterine is marked with the word "Oleomargarine," as required by law. The company also puts up butterine in 1-pound and 2-pound prints, and puts the word oleomargarine on them. The company advises its customers to comply with all Federal legislation. Mr. Dadie admits that the company is fighting some State laws, and that if anyone attempts to persecute its customers it will defend them. (328-329.)

Mr. POTTER, manager of the butterine department of Swift & Co., says that this concern puts up butterine both in wooden packages and in 1-pound prints. Not only the large package, but every printed wrapper, when the form of prints or rolls is used, has the word "Oleomargarine" printed plainly on it. Referring to the statement that manufacturers of butterine guarantee protection to dealers who sell butterine as butter, Mr. Potter denies that Swift & Co. have ever made any promises of that character, and asserts that it is their policy to sell the product strictly on its merits, and to create legitimate demand for it; and that they use all their influence to have it sold for what it is. (336.)

Mr. THOMPSON, manager of the butterine department of the G. H. Hammond Company, asserts that this company has never encouraged or defended the retail dealers in selling butterine as butter, and will not protect them in it. When it puts up the goods in printed wrappers the wrappers bear the word "Oleomargarine." (338.)

Mr. MILLER declares that his company has spent as much as \$25,000 a year in advertising its butterine. Its billheads read "Butterine," and it puts up large advertising signs. There is nothing secret about the marketing of its goods. Mr. Miller says that butterine is demanded because it is an article of merit, and is sold for what it is worth. In the summer many people buy it who can not afford to have ice boxes. It keeps where butter would not. (324.)

Mr. JELKE, general manager of Braun & Fitts, oleomargarine manufacturers, declares that the belief of his concern is that the interests of the butterine manufacturers will be best served by having the goods sold to the consumer for what they are, and letting the consumer know what he is buying. Braun & Fitts send out thousands of circulars, pamphlets and cards to advertise their product. (833.)

Mr. STERNE, a commission merchant who buys materials for oleomargarine makers, declares that he is very close to these manufacturers, and that he believes that their earnest efforts are directed to creating a demand for butterine rather than for butter. (842.)

Mr. ADAMS, speaking from an experience of 4 years in administering the dairy-food laws of Wisconsin, says that while the wholesalers and jobbers of oleomargarine know what they are selling, and the retailers and keepers of boarding houses and restaurants know what they are buying, the boarders in boarding houses and cheap restaurants do not know what they are buying when they call for butter and get butterine. The butterine is finally consumed for butter, and could not be sold if it were not colored in imitation of yellow butter. (208.)

4. *Effect on the price of cattle, etc.*—Mr. STERNE, a commission merchant, believes that the demand for the fats used in making oleomargarine has raised the price of cattle and hogs throughout the Union, although the production of butterine is only about 6 per cent as great as the production of butter. (841.)

5. *Coloring matter*—(See also *Coloring materials*, p. 91.)—a. *In butter*.—Mr. KNIGHT says that in the flush of the season there is very little, if any, coloring matter used in butter, but that in the winter butter is almost universally colored, solely for uniformity. He does not think this is a deception at all. Consumers do not want butter white at one time and yellow at another; but butter shipped to England must be as white as it can be made. (141-143.)

Mr. PIRRUNG says that 25 years ago butter was of all kinds of colors, but now it is universally colored artificially. The object is the same as the object of coloring fine confections; namely, to make the product more pleasing to the eye and so more acceptable to the taste. (817.)

b. *In oleomargarine*.—Mr. KNIGHT says that 38 States have enacted anticolor laws, but in the face of all this State legislation, the production of oleomargarine has doubled in one year, because it is of such a deceptive character that it is absolutely impossible to keep track of it after it leaves the manufacturer. He says there is absolutely no way of compelling the sale of oleomargarine as such as long as it is permitted to be colored in imitation of butter. He speaks of a raid among the retailers in Philadelphia in which 100 dealers were found to be selling oleomargarine without licenses. The Government was actually losing revenue through failure to identify the article. Mr. Knight says there is no such thing as selling uncolored oleomargarine. No one ever saw it except in a few places where it has been experimented with, and people would not consume it if they knew it was oleomargarine. (139, 141.)

Mr. Knight says that the Supreme Court of the United States has twice held that it is a deception to color some other kind of compound to resemble butter. (145.)

Mr. PIRRUNG says the highest court of Michigan has recently decided that the law forbidding coloring whereby damage or inferiority is concealed or whereby the product is made to appear better than it is can not be made to apply to oleomargarine, because it is not colored for these purposes. (317.)

Mr. PIRRUNG declares that in his experience of 12 years he has never found an instance in which a chemist has brought into court, in the trial of a butterine case, the actual coloring matter extracted from a sample for the inspection of the court and the jury. (839.)

Mr. MILLER denies that butterine is colored to resemble butter. According to him, when his company began to make butterine in 1881 it gave its product a high color; but this was not to imitate butter, because very little butter was then colored. "In the winter it was almost white; in the summer it was a light yellow or natural grass color. Since the advent of butterine the creamery men have found it necessary to imitate it." (824.)

Mr. STERNE says the object of coloring oleomargarine is to make it attractive to the eye, as in the case of butter; not particularly to make it resemble the highest grade of butter. The popular butter is a bright yellow color, and the more perfectly yellow the butter and butterine makers make their product the more quickly it is sold. (223, 224.)

Mr. BROADWELL says that if oleomargarine were colored pink, not a pound of it could be sold; it has to resemble butter. Coloring it pink would raise the price of pure butter to 40 and 50 cents a pound. (166.)

6. *Legislation*—a. *In Wisconsin*.—Mr. ADAMS says the law of Wisconsin, which

he drew, prohibits the coloring of oleomargarine in imitation of butter to prevent its sale as a counterfeit. The friends of the oleomargarine interest insisted that the dairy interests were inconsistent, because they colored their butter; but butter is not colored in imitation of any other article or of a more valuable quality of the same goods, but to please the eye. Wisconsin has also passed a law requiring made-over butter to be labeled. It is not possible by any process of coloring to make ordinary or poor butter good butter. (207, 208.)

Professor MITCHELL, chemist to the Wisconsin dairy and food commission, says it is almost impossible to require hotels and restaurants to inform their customers when imitation or adulterated foods are used. In Wisconsin notice to customers is required when butterine is used, but it is not stated how the notice shall be given. Sometimes it is given on the bill of fare and sometimes by signs, and usually the effort is to get the sign in a rather out-of-the-way place. He thinks there are only a few places, in the lumber region in the northern part of the State, where this law is not enforced. In all the larger cities in the southern part of the State it is enforced strictly. (109.)

b. Proposed national anticoloring law.—Professor MITCHELL feels very well satisfied with the Wisconsin law prohibiting the coloring of oleomargarine in imitation of butter, and would like to extend it, in a measure, to all products artificially colored in imitation of other substances. He thinks a national law prohibiting the coloring of oleomargarine would be desirable, as the color assists in deceiving the customer. The objection to coloring butter is not so great, because butter is not colored in imitation of anything else. He thinks that a national anticoloring law would aid in the enforcement of the oleomargarine act. (110, 127.)

Mr. GEORGE M. STERNE, a commission merchant of Chicago, formerly in the oleomargarine business, thinks the use of aniline dyes by either butter or oleomargarine makers should be prohibited, but a law absolutely prohibiting the use of coloring matter in either butter or oleomargarine would hurt the trade in both; the harm would be greater to the butter people than to the oleomargarine people. (224.)

Mr. PIRRUNG thinks that to forbid the coloring of oleomargarine and permit the coloring of butter would be an injustice to the poorer people, who wish to use the cheaper article. If the poor man's little child goes to school with bread buttered with a substance whose color shows it to be butterine, she will be subject to the same sort of comment which she is subject to if she wears inferior clothes. The coloring of butter puts the poor child on equal terms with the rich. (318.)

c. Taxation.—Mr. PIRRUNG says that the taxes upon oleomargarine are unjust, since they simply come out of the pockets of those who desire to use the product. A small license tax, say \$12 a year, might well be laid on retail dealers to secure the registration of them. The high tax which is now laid, \$48 a year, is an unjust burden. The proposed tax of 10 cents a pound upon colored oleomargarine is simply a tax upon a man's taste in respect to the color of his food. To make a man pay 10 cents a pound because he prefers yellow butterine to white is as wrong as it would be to tax him for preferring a black woolen suit to a gray. (320-322.)

Mr. JELKE also complains of the levying of a national tax of \$48 a year upon a little shop before it can sell a pound of oleomargarine—a larger tax than the Government collects from the biggest saloon in Chicago. This prevents many dealers from handling the goods and makes it impossible for many people who want oleomargarine to get it at the stores where they are accustomed to trade. It deprives the people of the privilege of using a cheap fatty food. (333, 334.)

Dr. WILEY says that if the public could be protected against frauds without a tax he would prefer it, as it does not seem to him quite right that persons in straitened circumstances who prefer to use the substitutes should pay excessive taxes upon them. (14.)

Mr. KNIGHT, secretary of the National and the Illinois Dairy unions, has come to the conclusion that nothing can be done about oleomargarine except through an internal-revenue law. He refers to a former internal-revenue law taxing petroleum and regulating the mixture of petroleum and naphtha. Congress repealed the tax, but left the law standing as to mixing, and the Supreme Court decided that inasmuch as the tax had been repealed the regulation was interfering with the police powers of the States and had no standing. (138.)

d. Milk.—1. *Adulteration generally.*—Dr. H. W. WILEY, chief chemist of the United States Department of Agriculture, testifies that the most common form of the adulteration of milk is the abstraction of the cream. Milk is also often diluted with water, and preservatives are used to prevent souring. (13.)

Professor HALLBERG says that various means have been adopted and ordinances passed fixing limits for the amount of fat and solids to be contained in milk. This has done a great deal toward improving the quality of milk. (83, 84.)

2. *Skimmed milk*.—Professor VAUGHAN says a child fed upon skimmed milk may suffer just as much as if a poison were administered to it, by not getting the proper food constituents. (202.)

Mr. MONRED says skimmed milk is not a good food, but an inferior food, and should be sold under its own name and for its value. It is a cheap food and he objects to its being sold as pure milk. In Chicago it may be sold if the cans are tagged. In New York City the board of health allows it to be sold under its own name. (65.)

3. *Coloring*.—Professor MITCHELL showed the committee a sample bottle of coloring matter for coloring cream and skimmed milk to make it look like milk rich with cream. It was made of sulpholated aniline. Professor Mitchell says it is not exceedingly injurious, but the object of its use is deception. (115.)

4. *Preservatives* (See also *Formaldehyde*, pp. 95-97; *Boric acid and borax*, p. 97).—Dr. WILEY says the conditions which obtain in a thunder storm are those in which milk ferments grow with the greatest rapidity; hence the common impression that the souring is due to the thunder. Boric acid and formaldehyde have often been used to prevent souring. (13, 45.)

Professor MITCHELL testifies that antiseptics or antiferments are used to some extent in milk, butter, and cream; both simple antiseptics and those which are used in connection with coloring matter to give an appearance of yellowness and richness. (111.)

Mr. KNIGHT says that milk that is fed to a child or infant should be absolutely pure, because a child that lives on milk takes enormous quantities. If a child should use a pint or a quart of milk a day containing one-half or three-fourths per cent preservatives, he would get more of the preservative in 1 day than a man would take in butter in 6 months, almost. (251.)

5. *Accidental contamination*.—Mr. HELLER says milk bottles are often taken into sick rooms, where disease germs get into them. The germs thrive very readily in the milk. When the bottles are washed in warm water the germs still remain, and there is great danger of infection in this manner. The use of freezine in a stronger solution than prescribed for milk would prevent this. (176.)

D. *Condensed milk*.—1. *Legitimate manufacture*.—Mr. ROGERS, secretary of the Borden Condensed Milk Company, says that in all his experience of 35 years the product of this company has never been adulterated in any way, and none of the cream has been removed from the milk. The process consists of nothing but the extraction of water and the addition of the finest granulated sugar, made especially for the purpose, free from adulteration and from all coloring matter. The average of solids in the milk used by this company is 13.47 per cent, and the average of fats is 4.7 per cent, while milk which contains 12 per cent of solids, including 3 per cent of fats, satisfies the requirements of the New York law. The Anglo-Swiss Company and some other concerns make condensed milk of the same high standard, but there are smaller establishments which act differently. It is possible to take out one-half per cent of butter fat from the milk and still make a fairly good product; but the honest manufacturer is not fairly treated by such competition. Condensed milk is sometimes made from skimmed milk. That results in the starving to death of children that are fed upon it. It is a crime in New York to skim milk before condensing it, but it is not prohibited in other countries. Europeans were stopped years ago from bringing such products to this country and marketing them here. The Borden Company has given a great deal of attention to stopping the sale of adulterated condensed milk. State boards of health have been appealed to where they exist, and State governments where boards of health did not exist. (440-443.)

Dr. SCOBELL considers the Highland brand of condensed milk a good kind, the manufacturers having their own cows. (52.)

2. *Removal of fat*.—Mr. MONRED, of Winnetka, Ill., a dairy expert, says several brands of condensed milk are really condensed skimmed milk. The butter fat having been extracted, the preparation is adulterated and a fraud. During the World's Fair he made one or two analyses with the Babcock test and found that milk had been fraudulently labeled, containing 2 per cent instead of $8\frac{1}{4}$ per cent of fat. Mr. Monred says there is great danger in condensed milk as a food for children, because it is diluted with water and starves the children. (64, 65.)

Mr. DUFF, chemist of the New York Produce Exchange, says that he has bought a sample of condensed milk which contained hardly any fat. To feed such milk to a child would be to starve it to death. Such adulteration ought to be classed as criminal, even though in one sense it might be called not injurious to health. (497.)

Professor HALLBERG says there is no telling how many infants have been starved to death on milk made from skimmed condensed milk. What the infant needs the first and second years more than anything else is butter fat; the feeding of an infant on skimmed milk is a species of slow murder and should be prohibited. (82.)

3. Need of national legislation.—Mr. ROGERS says that adulterated condensed milk and condensed skimmed milk have been sold in New York to the extent of thousands of cases. Dealers have been tried and fined, and the sale of particular brands of adulterated milk by particular dealers has been stopped in New York; but the milk was shipped to New Jersey or to Pennsylvania or to Connecticut and sold there. The matter can not be effectively dealt with except by a national law. (443.)

Mr. MONRED does not think State laws would be sufficient in the case of condensed milk, because it is used largely on board ships and is shipped from one State to another. He favors a national pure-food law. If that is impracticable, he favors a national law allowing each State to have a trade mark and give the manufacturers a State brand, as suggested in the Sauerhering bill. (85.)

E. Filled Cheese.—Dr. WILEY says it is a common practice to adulterate cheese by abstracting the butter fat and substituting some other fat, making what is known as filled cheese. The added fats are usually pure and wholesome, but less valuable, less palatable, and otherwise less desirable than the natural food, though perhaps not less nutritious. Their substitution is therefore a fraud. (14.)

Professor MITCHELL says filled cheese is not necessarily deleterious to health, but is a much inferior product to oleomargarine from a food standpoint. It is not a permanent or desirable imitation of cheese; it does not ripen normally and it soon spoils. (110.)

F. Lard.—**1. Adulteration.**—Dr. WILEY testifies that the chief form of adulterating lard is the mixing of vegetable oils or fats and the use of other animal fats, as that of beef, in lieu of the fat of the hog. This mixed matter has been sold very extensively as "refined lard." It is shown by chemical and physiological investigation to be as wholesome as pure lard, but vegetable oils and other fats being less expensive than pork fat, the mixture is a fraud; and it can be sold at a larger profit than pure lard. The witness sees no objection to the sale of any wholesome mixture of fats under their own names. Cotton-seed stearin, for instance, makes an excellent cooking matter, and is preferred by many housekeepers on account of its vegetable origin. At the time he made his investigation the mixture of cotton-seed oil with lard was carried on to a very large extent. (15, 16.)

Professor MITCHELL says lard is adulterated with certain grades of cotton-seed oil, which softens it, and the consistency is brought back by the addition of beef stearin, or, in some cases, of paraffin wax, of which very much less is necessary. Paraffin wax is a petroleum product, perfectly indigestible, and not a food. Beef stearin and cotton-seed oil are not necessarily deleterious to health. (125.)

Professor Mitchell also says that cocoanut oil is used as a lard substitute. It is a clean vegetable oil when properly handled. (127.)

Professor EATON testifies that in 1897 lard was very much adulterated with beef fat and cotton-seed oil. The beef fat was stearin, probably a by-product of the production of oleomargarine. He did not regard this adulteration as injurious to health. (234, 235.)

Professor JENKINS states that out of 162 samples of lard examined at the Connecticut agricultural station 36 were found to be adulterated with cotton-seed oil and beef stearin. (451.)

2. Proposed legislation.—Professor MITCHELL thinks that lard containing paraffin wax should be prohibited, but that beef stearin and cotton-seed oil might be permitted under proper labels. (125.)

G. Canned roast beef.—Professor HALLBERG says that according to the testimony of the men most vitally interested in the manufacture and preservation of canned goods canned roast beef is made by first boiling and extracting a large percentage of extract, the beef residue being then put into cans and subjected to a high heat in retorts, or roasted. This beef he pronounces unfit for food on the authority of Professor Liebig, who found that while the fibrin or fiber is chemically the same as egg white, its digestion and assimilation depend upon the presence of the principles represented in the extract, and that while, therefore, these substances represent the total nutritive quality of the beef, they should not be used singly. Even canned roast beef has a certain use; boiled beef is practically the same thing, but witness never takes boiled beef without horseradish or mustard, and says no boarding-house keeper who knows her business would give it more than once a week, because the substances necessary for complete digestion have been taken out. (81.)

H. Horseflesh.—Dr. WILEY says that the sale of horseflesh has become quite common in many parts of Europe, and it is not always sold as horseflesh. He presumes that horseflesh has been sold in this country for human food. Horses are slaughtered for human food in this country and their carcasses inspected by officials of the Bureau of Animal Industry, but he can not testify whether they were used in this country or not. It would be very easy to palm off horseflesh for beef, especially for the coarser grades. It would take a microscopic or chemical examination to determine the difference. (40.)

I. Fish and Game.—Dr. WILEY considers the sale of one kind of fish for another, as a cheaper fish for a dearer fish, especially when packed in oil, to be very objectionable. The sale of other fish for sardines and the stamping of boxes with foreign stamps are not uncommon practices. English sparrows are sold for reed birds, and other birds are sold for game birds of high value which they resemble. The sale of one kind of duck for another and of other turtles for terrapin is often practiced in restaurants and markets. He characterizes these practices as commercial frauds. (40.)

V. SUGAR AND SWEETS.

A. Sugar.—1. *Process of refining.*—Mr. SCHILLER, a chemist employed by Arbuckle Brothers, states that the raw sugar is dissolved in water and run over bags or through presses to remove the suspended impurities, and is then run over boneblack to remove the soluble impurities. Then it is crystallized in a vacuum pan. Lime is used after the sugar is dissolved to correct acidity, and some refiners use blood or albumen or other material in its place to clarify the solution by removing the suspended impurities. (430, 431.)

2. *Production of certain refiners.*—Mr. HAVEMEYER says that the American Sugar Refining Company refines about 70 per cent of the sugar used in the United States, the Arbuckles about 5 per cent, and the other companies about 25 per cent. (467.)

3. *Adulteration.*—Mr. SCHILLER states that since about 1882 he has never found any adulterant in sugar. He did at that time find a large proportion of granulated glucose in granulated sugar. Arbuckle Brothers' granulated sugar is 99.8 per cent pure; one-tenth per cent may be moisture and one-tenth per cent ash. A mixture of glucose with granulated sugar could be detected instantly.

Mr. Schiller has never seen powdered sugar adulterated with starch or corn flour. He declares that Arbuckle Brothers' powdered sugar is just as pure as their granulated sugar. (431.)

Mr. HAVEMEYER, president of the American Sugar Refining Company, testifies that no ingredients whatever enter into his sugar except raw sugar itself. He does not know of any adulteration of sugar by his competitors. He thinks their goods are absolutely pure. About 15 years ago, on account of the cheapness of glucose, it was used as an adulterant in coffee sugars; but Mr. Havemeyer thinks that this did not succeed and was entirely abandoned. (466.)

Mr. GEORGE W. SMITH has never found any powdered sugar that was pure. He says it is adulterated with corn starch. (134.)

Mr. GALLAGHER says he is told that several food products carry mineraline, and has found powdered sugar adulterated with an insoluble substance. At tables and bars where powdered sugar is used a residue is found in the bottom of the glass. (4.)

Professor TUCKER thinks that powdered sugar is much less commonly adulterated than is popularly supposed. "Probably you could collect a thousand samples without finding other than pure samples." (436.)

B. Maple sugar and sirup.—Dr. WILEY says the high price of maple sirup leads to its artificial fabrication, the common method being to mix it with glucose or with melted brown sugar. The glucose is apt to make the sirup sticky, while the yellow sugar gives a degree of thinness like maple sirup. This product is flavored with an extract of hickory bark or some similar substance, which gives it a flavor similar to that of maple. Thousands of barrels of "pure Vermont maple sirup" have been made at Davenport, Iowa, and other localities where a maple tree never grew except when planted on the street, and these artificial sirups are sold extensively, becoming cheaper and more abundant the greater the distance from Vermont. Dr. Wiley does not think the extracts of hickory bark deleterious in small quantities. The value of maple sirup is not alone in the sugar it contains, but in the peculiar flavoring substance which exists in minute quantities. No one ever heard of refined maple sirup. Refining would take away the flavoring matter and diminish the price. (29.)

Dr. Wiley also says that solid cakes of maple sugar are adulterated very extensively by melting in the yellow sugar from the refineries. In Vermont the practice

of adulterating is not very extensive, the farmers there generally selling the genuine article, though there are mixers even in Vermont. Even the chemist is practically helpless in this case, the amount of flavoring matter being too small to be estimated by chemical means. The maple sugar is boiled until ready for crystallization and then poured into a mold. If this material were passed through boneblack the product would be ordinary sugar, worth about 4½ cents a pound; in the raw state it is worth 8 or 10 cents a pound. (29, 30.)

Mr. SCULLY says pure maple sugar comes principally from Vermont and Canada. In Vermont there is a very stringent law against turning out impure sugar as pure, so he has every reason to think that every package coming from there is perfectly pure. That from Canada he is quite sure is pure, because it is very strong maple. (95.)

According to Mr. Scully, even thick, heavy, natural maple sirup would not keep very well through the summer. It will keep if hermetically sealed, but in the sugar bush facilities for putting it up properly are lacking. Maple sirup is ordinarily made by melting maple sugar, but a great deal comes directly from the sugar bush. The principal object of putting it into sugar is to keep it through the summer. It will keep any length of time as sugar, but the sap would not keep through the summer, and the demand for maple sugar begins in the fall. The D. B. Scully Sirup Company handles three grades of maple sirup. One is guaranteed pure, the others are not; but when they go into a State which has a pure-food law the formula is printed on the outside, showing just what the ingredients are. There is no formula printed on the outside for Illinois, because it is not required. The company sells the goods as they are, not representing them as pure when they are not. The second grade of maple sugar is 60 per cent pure maple and 40 per cent glucose; the third grade has a larger percentage of glucose. Occasionally his company may use a little brown sugar, but not generally. Mr. Scully does not believe that his competitors use any adulterants other than glucose. A great many things have been put on the market as maple flavors, but none of them ever amounted to anything. He never heard of hickory bark being used successfully. Two grades of maple sirup may be brought nearly to the same color by using a darker maple for one than for the other. The second grade of maple sirup sells for about 20 per cent less than the first, and the third grade perhaps 25 per cent lower than the second. The delicate flavor of the maple is not affected by repeated boiling. Mr. Scully's company has melted maple sugar two or three times and found no change in it. In the first operation it loses some of the maple flavor, but not afterwards. Maple sirup which has fermented can not be used again. (90-93, 95.)

Mr. BERRY says that in his experience the greater proportion of maple sirup sold is pure, because as a rule people who eat it pretend to be judges of its quality. But there are probably a good many people who are not judges who never buy anything but adulterated goods. The Chicago Sirup Refining Company lists three grades of maple sirup—one pure, one 60 per cent maple, and one 40 per cent maple and 60 per cent glucose. Some people want 25 per cent maple, so that they can get it at a certain price, and it is made to order for them. The pure sirup is branded "pure," and when sirups go into a pure-food State, such as Michigan, Wisconsin, and Ohio, the formula must be put on. The second and third grades going to a State where there is no pure-food law are simply sold as maple sirup, the merchant who buys them knowing what he is getting from the price. The consumer, Mr. Berry thinks, is misled. A good many people buy the second grade because they can hoodwink their customers and sell it for pure maple sirup. At the stipulated price it requires glucose to bring it down to the cost. (96, 97.)

Mr. ORT COOKE testified that he was endeavoring to produce a substitute for maple-sugar sirup, and produced samples of the product. He said that it was a wholesome vegetable product, composed of two kinds of sugar and a flavor. (287.)

C. Sirup and molasses.—*1. Table sirup.*—Dr. WILEY says that the manufacture of table sirup engages quite a large capital in this country. The old-fashioned table sirups were made directly from the maple tree, sugar cane, or sorghum, without admixture. Then gradually the custom arose of using the molasses resulting from the manufacture of sugar. The old-fashioned open-kettle method is still used for very fine table sirup, the sugar cane juice being boiled in an open kettle, and the sirup when crystallized being put into hogsheads with perforated bottoms through which the molasses runs out. Small farmers formerly made an immense quantity of sirup from sorghum by boiling down the juice. Other large quantities were made from the maple orchard. Artificial processes have now come into vogue. Many sirups are made from glucose, artificially colored with sugar-house molasses, 5 gallons of this refuse of sugar refineries and 45 gallons of glucose making a barrel of table sirup with a slight amber color and the flavor of sugar sirup. This very common article is still sold the country over, often under fancy names, as

"Golden Drip," "Honey Drip," "Honey Sirup," and others. The witness never heard of its being sold under the name of glucose or mixed glucose. People imagine that it is a high grade of sugar-cane sirup, when in fact it is a very low grade of molasses which could not be made into anything else. It is sold at fancy prices, clear sirup with a light amber tint always brings a higher price than others, whatever its composition. Dr. Wiley makes no criticism of fabricated table sirups in regard to their nutritive value and wholesomeness. (28-30.)

Mr. BERRY testifies that the Chicago Sirup Refining Company, with which he is connected, does business with the jobbing trades. The jobbers handle a number of varieties, some light and some dark, and have their own brands. In selling to a new customer his company would require a sample of the goods wanted and would brand them as desired. Every jobbing house has from 3 to 5 or more brands of sirups. The light, medium, and dark are branded differently, although their cost and ingredients are practically the same, the darker ones, however, having more cane sugar than the lighter ones. (96.)

Mr. MAURICE H. SCULLY, of the D. B. Scully Sirup Company, says that many sirups of the same quality and price, but perhaps different colors, go under different brands. There are 30 or 40 different grades, and a good many more than that number of brands. The D. B. Scully Sirup Company has certain grades which are sold for what they are worth, and does not make sirups to order. It does not use anything in manufacturing sirup besides cane sugar, corn sugar, and maple sugar, except that occasionally a very little flavoring, such as vanilla or something of that kind, is added to certain grades. This is not used to adulterate maple sugar, but is used in vanilla-flavored corn sirup. The vanilla flavor is obtained from the vanilla bean. Corn sirup is mixed by adding glucose to a percentage of cane sirup. His company does not manufacture either of these products, but simply mixes them. The only coloring used is the cane sirup itself, a larger percentage of cane sirup being added in a dark corn sirup than in a light one. (89-93.)

Mr. Scully, being shown a can of sirup manufactured in Iowa, and apparently made to comply with the law of Ohio, explains that the label "80 per cent corn sirup, 20 per cent sugar sirup" indicates 80 per cent glucose and 20 per cent cane sirup, which is manufactured in Eastern refineries. (93.)

2. *Rock candy sirup.*—Mr. SCULLY says that the D. B. Scully Sirup Company manufactures rock-candy sirup from the sugar. The sugar is boiled to a liquid and converted into candy, and the sirup comes from the candy. The candy crystallizes on strings, but a portion of it remains in solution and is not allowed to crystallize. This sirup is used principally in soda fountains, variously flavored and colored; also by rectifiers in blending liquors. (90, 95.)

3. *Souring of sirup.*—Mr. SCULLY says very little sirup sours; possibly not one package comes back in two months. In the early fall perhaps a little comes in from having stood over the summer, but is soon used up. His company uses no antiseptic to prevent fermentation, even in reboiling sirups; it formerly tried salicylic acid or something of that kind, but gave it up, not thinking it would do any good or be effective. (94.)

Mr. Scully says damaged or sour sirups, other than maple sirups, can be reboiled and brought back nearly to their original sweetness, and can be used again in a small way in other sirups without being detected. (91.)

4. *Molasses.*—Professor JENKINS states that during the last 4 or 5 years about 20 per cent of the New Orleans molasses examined at the Connecticut Agricultural Station, and some sold as Ponce molasses, has been found to contain considerable quantities of glucose sirup. Some samples have seemed to be made entirely of glucose. (451.)

D. Glucose.—1. *Mode of manufacture.*—Dr. WILEY says glucose consists of dextrin, a little maltose and dextrose, and a small percentage of other substances. In making table sirups and for mixing with honey it is boiled until it has a density of from 41° to 42° Beaumé. For confectionery it is boiled to a density of 45°. The by-products of glucose are very valuable, and are used mostly as cattle foods. The oil extracted from the germ of the grain by pressure is used for various purposes. It has been used to adulterate linseed oil, and when treated with sulphur it becomes a highly elastic mass which has been used as a substitute for india rubber. About the only products of the glucose factory which are not sold as substitutes for some human food are the by-products used for cattle feed. (21.)

Dr. Wiley says that in the manufacture of glucose or grape sugar in this country the starch is usually obtained from indian corn. In Europe it is obtained from the potato. (20.)

2. *Price.*—Dr. WILEY states that within the 2 years preceding his testimony (January 17, 1900) glucose has been sold as low as nine-tenths of a cent a pound.

It was somewhat higher at the time of his testimony, but he estimated the cost of it at about one-fifth of the cost of pure cane sirup. (585.)

3. *Distinguished from grape sugar.*—Mr. BROWN says that grape sugar is a solid substance and glucose is a liquid. (386.)

4. *Wholesomeness.*—*a. Affirmed.*—Dr. WILEY has found that glucose and grape sugar, when properly made, are valuable food materials and not injurious, but they ought to be used in their proper places and quantities, as the consumption of too much of any one kind of food may be injurious. (21.)

Professor PRESCOTT's opinion is that glucose is a food and deserving of recommendation and toleration as such. The public has had very little opportunity to judge how far it is a wholesome food, because the consumer does not know when he is getting glucose and when he is getting some other sugar. (197.)

Professor MALLET states that glucose is harmless in itself, and that, in fact, ordinary cane sugar, when taken into the stomach is converted by the digestive fluid into two kinds of glucose; but a man who sells glucose under the names of other substances commits a fraud. (558.)

Mr. SCULLY does not regard glucose as having any deleterious effect. It makes the flavor of maple sirup less strong. (94.)

b. Denied or questioned.—Dr. PIFFARD believes glucose to be harmful. (192.)

Professor HALLBERG says that he would no more think of buying a sugar preparation made of glucose than of buying black jack for coffee. Some chemists say that glucose is healthy, others that it is not. (82.)

E. Legal regulation of sirup and glucose.—Mr. BERRY thinks that a national pure-food law compelling manufacturers of sirups to state the composition on the package would be of benefit to both consumers and manufacturers. In Michigan, when the law first went into effect, the pure food commissioner ruled that corn sirup could be branded as before; but in a little while he ruled that it must be branded "No. 6" sirup, and later, that it must be branded "Glucose Mixture," with the manufacturer's name. It has been so in every State that has adopted a pure-food law; so that manufacturers are compelled to keep a variety of labels on hand and change them from time to time. If there were a national law they would simply put the formula on and the sirup could go to every State in the Union. This opinion applies also to jellies. (98, 101.)

Dr. WILEY suggests that only a law requiring publicity would prevent fraud in the sale of sirup, as in the case of mixed flour. (30.)

Professor MITCHELL would permit glucose to be mixed with cane sugar or cane sirup and sold with the formula. (119.)

Professor CHITTENDEN regards the glucose industry as entirely legitimate, but thinks that the law should compel the selling of glucose under its proper name. It should bear a label to show what it really is. (423.)

F. Confectionery.—*1. Nutritive value.*—Dr. WILEY says that there is a natural taste, especially in young children, for sweet materials, and that those of vegetable origin aid in the growth of the body, furnishing heat and adipose tissue. Sweets are nutritious, even in small quantities. Late experiments made in the German army show that sugar is useful as a ration; little pellets of sugar which can be carried in the pocket serve to keep up strength when soldiers are to live 2 or 3 days on small rations during a hard march. (31.)

2. Ingredients.—Dr. WILEY says the sugar used in confectionery is nearly always reasonably pure and wholesome, but that sugar alone would make only a brittle confectionery, and the manufacturers strive to meet the demand for soft and waxy products. Marshmallows, for example, contain glucose, gelatin, and often flour, to give them the consistency and color desired; also flavoring to give them the peculiar flavor and odor. Caramels require burnt sugar; some contain chocolate, and some also glucose, and sometimes flour or starch (starch being preferred to flour because free from protein); also flavoring matter. These flavoring materials are of vegetable and synthetic origin. Some of the ethereal oils, as those of cinnamon and cloves, are used in small quantities, and in minute quantities are not injurious. The synthetic flavoring bodies made by the chemist resemble or are almost identical with those obtained from fruits and flowers, and in some cases can be made much more cheaply, so that they are supplanting the natural ones. It seems to the witness that where artificial flavorings are employed the consumer should know it, because very delicate stomachs are injured by the artificial product, although the chemicals seem to be identical with the natural ones. (30, 31.)

Mr. BERRY, a confectioner, states that the body of all candies is sugar, and the next most important ingredient is glucose. After sugar and glucose the chief constituent is molasses, and then probably peanuts. Mr. Berry uses tartaric acid and citric acid, and vegetable coloring matters, which are sold with written

guaranties that they are perfectly uninjurious. The jellies and jams which he uses he generally makes from the fresh fruit and puts them up in jars. (308, 309.)

Mr. GUNTHER says that sugar makes up the body of candy, just as flour makes up the body of cake, but it is not the expensive ingredient. A perfectly pure, wholesome candy can be sold for 15 cents a pound, but the higher grades of candy are made of pulps of fruits and nuts, which are very expensive. (307.)

Mr. Gunther declares that the use of glucose is a benefit to the candy trade and a benefit to the public, in making it possible to produce uncrystallized candies without the use of cream of tartar. It is perfectly wholesome. (306.)

Mr. Gunther says that starch is not used in candies proper. It is used in some so-called fig pastes, Greek or Oriental or Turkish paste, and gum drops, which are simply an imitation of the genuine gum drop. These goods are just as wholesome as bread. Mr. Gunther has not known of the use of a substance called flourine, a by-product of glucose factories, in candy. Starch is so cheap that he does not see how anything cheaper could be found. (305.)

Mr. Gunther says that chocolate is adulterated with flour, but not with anything injurious to the health. (306.)

Mr. Gunther says that very little acid is used, except in acidulated goods, such as lemon drops. For that purpose citric or tartaric acid is generally used. Citric acid comes from citrus fruits, such as the lemon, and tartaric acid from the precipitate of the wine of the grape in casks. Confectioners buy the purest acids, because they want to use the smallest possible quantity in order to keep the candy clear. The use of cream of tartar in candy has been largely done away with by the introduction of glucose. Cream of tartar was used to make an uncrystallized candy, and glucose is itself uncrystallizable. Glucose is freer from acid, and candy made with it is better than the cream of tartar goods. (306.)

Mr. GALLAGHER says that corn flour is an excellent article of food and is used by confectioners, the demand for some grades being greater than the manufacturers can supply. (6, 7.)

3. *Use of injurious materials.*—Dr. WILEY says that the starch, glucose, sugar, flour, chocolate, burnt sugar, and gelatin used in confectionery are not to be condemned, but that the use of terra alba or other minerals in small quantities, even if not poisonous, is to be condemned, these materials being much more injurious than the vegetable substances mentioned, especially to children. (81.)

Dr. Wiley explains that terra alba, meaning "white earth," is a generic term for all kinds of white, finely ground minerals. It has been used largely in confectionery, and perhaps still is, in some cases, instead of starch, and to increase weight. Sulphate of lime or gypsum, when ground, makes a perfectly white powder partially soluble in water and dilute acid, and is used as an adulterant in confectionery. (81, 82.)

Dr. Wiley says that one habit indulged in by some confectioners which should be prohibited by law is the mixing of alcoholic materials with confectionery. He has examined gum drops and other candy in which a drop of brandy or alcohol could be found. He considers this extremely reprehensible, especially in candy for children's use. (81.)

Professor MITCHELL says that antiseptics are used to a considerable extent in candy, and that some substances are used in candy which are deleterious. (111.)

Professor VAUGHAN says poisonous substances are sometimes found in considerable amounts in confectionery. The anilines are often contaminated with arsenic. (203.) See also *Coloring materials*, pp. 91, 92.

Dr. BILLINGS says terra alba in confectionery is bad, not as a necessarily toxic thing, but as a foreign substance. Not very much is known about the effects of earth upon the human economy, but a class of people in the Carolinas who are earth eaters or clay eaters are stunted and mentally and physically degenerate. (249.)

4. *The Confectioners' Association and pure candy.*—Mr. BERRY has not known terra alba to be used during the last 8 or 10 years. The Confectioners' Association maintains a fund for the prosecution of people who use it, because it is considered injurious. (308.)

Mr. SHIELDS, a confectioner, says that he does not know of anyone who now uses terra alba in candy. It was formerly used principally in stick candy and drops which were sent to the Western and Southern trade. Very little was used in the Northern trade. The Confectioners' Association has done away with it. Mr. Shields uses both domestic and imported coloring matters. He understands that the imported colors are inspected by the governments in Europe, and must be strictly pure. (309, 310.)

Mr. GUNTHER, a confectioner, states that the Confectioners' Association of the United States was formed some 10 or 15 years ago, "with the sole object in view of shutting out and putting down every man who uses anything that is deleteri-

ous" in confectionery. The association includes almost every reputable confectioner in the country. It undertakes to look closely after the practices of those who refuse to join it. Mr. Gunther believes that the association has stopped the use of injurious materials, mineral colors, aniline colors, terra alba, and ethereal flavors. (804, 805.)

Mr. Gunther states that whenever the Confectioners' Association hears a report that anyone has been made sick by eating candy it investigates the case, and as a rule finds that the story is without foundation. If a child is taken sick within 48 hours after eating candy, physicians often conclude that the candy caused the trouble. In reality, Mr. Gunther asserts, candy which contains injurious materials would act in 15 minutes or half an hour. But for 10 or 15 years, since the formation of the Confectioners' Association of the United States, Mr. Gunther believes that the use of injurious materials, mineral colors, aniline colors, terra alba, and ethereal flavors, has been entirely stopped. (804, 805.)

Mr. Gunther says that he does not remember hearing of the use of terra alba during the last 10 or 15 years. (807.)

Mr. FAULKNER, a confectioner, says his firm makes the common kinds of candy of sugar, glucose, cream of tartar, and coloring matter. The coloring matter is a purely vegetable product imported from Germany and passed on by the German Imperial Government. He uses citric acid and tartaric acid. He does not use flour or starch or corn flour or flourine. He does not use terra alba, and has never seen it used, though he has heard of its being used in St. Louis. (802, 803.)

5. *National regulation demanded.*—Mr. GUNTHER would regard national legislation upon the subject of pure candy as very desirable. (806.)

Mr. SHIELDS believes that the Government ought to levy a license tax on candy manufacturers, in order to suppress the numerous small and ill-conducted concerns. He declares that 83 per cent of the candy is made in basements and cellars, by people who know nothing about the business, and it is from these small establishments that all danger to the public health in the manufacture of candy arises. (809-811.)

G. Honey.—1. *Extent of adulterations.*—Dr. WILEY says that honey is perhaps as extensively adulterated as any other food product in the United States, glucose being very convenient and cheap as an adulterant. In examining a great number of liquid honeys, purchased in the open market, he found that more than half were adulterated, in some cases the quantity of real honey being slight. He has often seen pieces of honeycomb floating in a large excess of glucose. This form of adulteration has probably proved as profitable as any other form of food sophistication. He says that glucose is wholesome and readily digested, and does not consider it injurious when used carefully, the fraud in this case being a financial one. The adulteration of honey has almost driven to bankruptcy farmers who sell genuine honey, especially in parts of California where the farmers' chief income was from that source, and has injured every farmer who keeps a hive of bees, by diminishing the value of his product. The United States has no control over the honey product, there being no national law on the subject. (14, 15.)

Dr. Wiley has analyzed many hundreds of samples of honey and found an enormous percentage of strained honey adulterated. When he made his examination several years ago it was the exception to find a pure honey in the strained form in the open market. He never found such honey with a piece of comb in the jar that was genuine. He says the presence of a piece of comb in the jar is a positive proof of adulteration, because comb honey is not sold in that way. The combs found in these jars are never perfect; they have the appearance of having been broken down mechanically, as in the process of centrifugal extraction, or of having been made artificially. The cells are sometimes half an inch deep, sometimes shorter, and they are frequently broken up. (213, 214.)

Dr. Wiley says that of 11 samples of honey bought by him in New York 3 were pure, 2 of doubtful purity, and the other 6 were adulterated with cane sugar or commercial glucose, or both. Dr. Wiley thinks it safe to say that 50 per cent of the strained honeys on the market of the United States are adulterated. (586.)

Dr. Wiley says that the nectar of flowers is originally common sugar, but is converted into invert sugar by the bee, so that natural honey contains at the utmost only 2 or 3 per cent of cane sugar. Honey made by feeding bees sugar sirup shows a large percentage of cane sugar, because the bees are not able to invert the whole of it, and this is easily detected. Natural honey, when examined by the polariscope, always shows a left-handed rotation, while cane sugar and glucose both rotate the plane of polarization to the right. Honey gathered from the pine tree is a right-handed honey, and sometimes it has been claimed in cases of prosecution for adulteration that the right-handed polarization was due to the gathering of the honey from pine trees; but this honey has a very rank taste, by which it can be distinguished, and is not fit to use. (215.)

Mr. GEORGE W. YORK, of Chicago, editor of the American Bee Journal, knows of no way in which honey in the comb can be tampered with or adulterated, and says all the comb honey on the market is absolutely pure. He says that liquid honey is the kind which is adulterated. He is positive that this adulteration is largely practiced, mainly with glucose, which can be bought for about 1 cent a pound, while pure liquid honey is worth from 7 to 8 cents a pound. He considers this adulteration not particularly harmful, but rather in the nature of fraud. It is accomplished by the dealers, who buy the honey directly from the producers and adulterate it. One of the adulterators in Chicago says he puts in one-eighth honey and the rest glucose. The taste is very distinct. Nearly all the large wholesale grocers adulterate honey. (209, 210.)

Mr. York thinks it has never been a practice among bee keepers themselves to adulterate their honey, and that he never knew of more than one bee keeper who was accused of adulterating honey. He thinks it is seldom adulterated by retailers, because they seldom put up honey in glasses, but is nearly always done by the wholesale grocers. (215, 216.)

Mr. York says that Chicago dealers who handle honey in large quantities very often get comb honey that is unsealed or partially sealed, and nearly always sell it to the adulterators to be cut up and put into jars. They are almost full depth cells. Bee keepers themselves never put up honey in jars with pieces of comb. (213, 214.)

Mr. York defines pure honey as the nectar of flowers gathered by bees and stored in combs made by them. If honey were produced by feeding sugar or sirup to the bees, he would not regard it as true honey; that would be getting the bees to adulterate. Some have fed sugar to produce honey, but this is practiced very little. It is not profitable, on account of the expense of the sugar and the waste in transforming. Sugar is fed for the purpose of wintering bees in very poor seasons, but not to any extent for the purpose of producing honey. (213.)

Mr. York says bee keepers do not use glucose as a food for bees, because the bees will not eat it. It was attempted some years ago in Mississippi, but in a short time the bees were all dead. (210.)

Mr. York and Dr. WILEY both think that glucose is practically the only adulterant used with honey in this country. Dr. Wiley says that in Europe, where the laws are more stringent, invert sugar has been very largely used for adulterating honey, making the problem of the chemist very much more difficult, as invert sugar is ordinary sugar treated with an acid which converts it into a mixture of dextrose and lebulose, almost the exact composition of natural honey. (214, 215.)

Mrs. N. L. STOWE, of Evanston, Ill., and Mr. HERMAN F. MOORE, of Park Ridge, Ill., both bee keepers, fully indorse Mr. York's statements with reference to the adulteration of honey. Mrs. Stowe says the sale of adulterated honey as honey does great harm to the bee keepers. She has no knowledge of bee keepers adulterating honey, but thinks it is done principally by the jobbers. Some bee keepers have to feed their bees in winter when they take too much of the surplus from them in the summer and fall, but she has never done so. She uses a comb foundation, but does not consider that an adulteration if it is made of pure beeswax. (216, 217.)

Mr. Moore says one of the first things he noticed when he first began to sell honey, years ago, was that a piece of comb in liquid honey was a badge of fraud. (217.)

Professor EATON has found cane sugar used as an adulterant in honey in two ways: (1) Added to the strained or extracted honey, and (2) fed to the bees. It is not an injurious adulterant. He has suspected adulteration with invert sugar, but has not been able to substantiate it. The abnormal percentage of cane sugar is very marked in fresh honey, but after the honey is old the sugar seems to be largely inverted, so that it is very difficult, often impossible, to detect it. (235, 236.)

Mr. FURBAY would consider a compound of honey and glucose sold for honey a fraudulent product, though not necessarily injurious to health. (61.)

2. *Comb foundations and artificial comb.*—Mr. YORK says comb foundations, made of absolutely pure beeswax run through rollers, are put in the center of empty boxes and placed in the hives. The bees draw out the comb, lengthen the cells, and add more wax. Experiments have been made with paraffin and other wax, but it will not do, because the heat of the hive melts it, and the bees do not take to it as well as to the natural wax. Mr. York believes artificial comb cut up and put into bottles with glucose might deceive purchasers, but the cells can not be made nearly the depth of the natural comb. Cells nearly half an inch deep have been made, but they were not a success, and have been abandoned. (212.)

Mr. MOORE says it is mechanically impossible for a man to make beeswax that will suit the consumer; he can not make it clean enough or light enough, and it

is commercially impossible, because the bees work more cheaply than men can, even with the very finest machinery or the cheapest labor. Under very favorable circumstances, where real honey can be raised from 10 to 12 months a year, as in Cuba, comb honey can be raised for 2 or 3 cents a pound. A comb foundation is simply an aid to the bees. Our honey crop is short in duration, and if the bees spend part of the time in building the comb they lose part of the crop. Beehives are composed of two structures—the board department, perhaps a foot high, and an upper frame half that height. Nine pounds of comb foundation are used in the permanent board part to 1 pound that is used in the surplus or pound sections. The comb foundation used in the board department may be used for 15 or 20 years, and is never destroyed; it is filled with young bees and honey year after year. Mr. Moore believes that the percentage of bee keepers who use the comb foundation in the 1-pound sections is very small, and he advises against its use there. (218.)

3. *Liquid honey—demand and process of extraction.*—Mr. MOORE says that nine-tenths of the trade ask for liquid honey; nine-tenths of the cake bakers, candy makers, roach-poison makers, druggists, and private families require liquid honey without a comb, if they understand that it is always pure honey. The honey is extracted from the comb by centrifugal motion, from one side at a time. The wood protects the wax, and the bees at once fill the comb again. A good comb with a good foundation in the center can be used 25 or 30 times. It takes more experience to raise comb honey than liquid honey. (219, 220.)

4. *White-clover and wild-sage honey.*—Mr. YORK, referring to a jar labeled "California white-clover honey," says it was put up by a Chicago firm. He never heard of a pound of white-clover honey being shipped from California. (214.)

Mr. York says honey made from wild sage or sage brush has a very different flavor from white-clover honey. (218.)

5. *Varying physiological effects.*—Dr. WILEY says pure honey sometimes produces nausea, and that some forms of honey are absolutely poisonous to some people. (216.)

Mr. YORK says a friend of his once said honey always made him sick, but witness gave him some pure honey, and he took it without harm. (216.)

6. *Preservatives unnecessary—granulation.*—Mr. YORK says he thinks no anti-septic preservatives are used either in pure honey or in its substitutes. Pure honey needs no preservative, as it will keep almost indefinitely. Honey has been found in one of the Egyptian catacombs, done up with a mummy; it was 2,000 years old, but as good as ever. Nearly all pure honey will granulate in time, some in 1 month, some perhaps not for 2 years. Mr. York does not know of anything being used to prevent granulation. (211.)

7. *Proposed legislation.*—Mr. YORK says very few States have pure-food laws affecting honey. All the bee keepers ask for is a law requiring the articles offered for sale to be labeled. There would be at least five times as much pure honey consumed in Chicago if people were not afraid of the adulterated article. (210.)

Mr. York thinks a national law regulating the commerce between the States in adulterated honeys would be beneficial to bee keepers. (215.)

Mr. HERMAN F. MOORE, secretary and treasurer of the Chicago Bee Keepers' Association, says a law preventing fraud in honey will benefit everybody, both consumers and bee keepers; he thinks it would increase the demand for pure honey. The sale of adulterated honey would be reduced 75 or 80 per cent if it were labeled. (220.)

Professor EATON believes that in the case of honey an honest label stating the composition is all that is required. (236.)

H. Jelly.—1. *Substitution of gelatin, glucose, etc.*—Dr. WILEY says that the old-fashioned pure jelly has almost gone out of use in the trade, the gelatin of commerce being largely employed, with artificial flavorings. All animal tissues contain the elements of gelatin, but they exist especially in cartilage, bones, and hoofs in the form of collagen, a highly nutritious, nitrogenous substance, which is converted into gelatin when heated in boiling water. The highest grade of gelatin is obtained by heating the tendons and bones of animals, especially the tendons. The hoofs and rougher portions yield gelatin which is used as glue. Gelatin is entirely different in chemical composition from the pectin or pectose of fruits, which is of the same family as sugar, and which produces jelly. The gelatin of animals has a higher nutritive value, pound for pound. The gelatin in artificial jellies simply gives the flexibility and tenacity of the mass, while the color and flavor are made to imitate those of fruits. A great deal of the jelly on sale contains no fruit substance, except perhaps a dash of wine. The witness has nothing to say against their wholesomeness, but characterizes them as fraudulent. Jellies are also largely made, he says, by utilizing the by-products of the apple-drying

and cider-making industry, the parings, cores, and pomace, from which is obtained pectose, which is fortified with glucose and flavored and colored. (22, 23.)

Six samples bought by Dr. Wiley in New York City were without exception artificial, though they were labeled and sold as pure fruit jellies. They were made of glucose, flavored with an extract of apple cores and peelings obtained from dried-apple factories, colored with aniline dyes, and further flavored with artificial essences. Dr. Wiley says that one can not be at all certain, even in a high-grade store, of getting a pure fruit jelly when one asks for it. In a lower-grade place one is quite certain to get some composite article. Yet one pays the price of the best article. (584.)

Professor JENKINS states that more than one-half of the jellies examined at the Connecticut Agricultural Station are adulterated. One firm sells several brands of jellies, "orange," "strawberry," "grape," etc., all made of a starchy paste, sweetened with glucose, flavored with artificial flavors, colored with coal-tar dyes, and kept from molding with salicylic acid. (451.)

Mr. STEWART does not believe that 5 per cent of the jellies sold are pure, from what he sees going out in tubs and in retail stores and elsewhere. Glucose and acid of some kind are used. (79.)

Mr. DUFF says that it is very difficult to get a pure fruit jelly. Glucose is largely the base of those in the market. (498.)

Professor PRESCOTT says jellies are largely made up of artificial mixtures and given the name of the jelly of this or that fruit. He thinks this is a very flagrant instance of injurious substitution. (198.)

Mr. BERRY thinks all the sirup houses now manufacture jellies. The Chicago Sirup Refining Company makes two varieties, one pure, the other the so-called "commercial jelly," which is marked "Jelly." The pure jelly is made from fruit juices and sugar as people would make it at home for their own consumption. In making apple jelly absolutely as pure as it can be made the apples would be boiled and the liquor condensed to the proper consistency and equal parts of sugar added; but Mr. Berry considers it better to make it of apple cider, because the jelly is then more transparent and has a more delicate flavor. The demand for pure jelly is very limited. The jelly sold is consumed by the masses, who want jelly at a certain price and do not care whether it is jelly or not. The commercial jelly in Illinois and other States having no pure-food laws is labeled simply "Currant jelly," "Raspberry jelly," etc., the commercial jelly being the base of a great variety of jellies. This commercial jelly is made from cores and skins. In evaporating apples the parings and cores are evaporated and will then last from one year to the next. They are mixed with glucose and a small proportion of sugar. The jelly is 50 per cent glucose, 10 per cent sugar, and 40 per cent apple juice, the glucose being put in to give it body. Mr. Berry considers this jelly wholesome. His company uses no gelatin.

Mr. Berry says the tart taste of the jelly is imparted by the apple juice, which is not overcome by the 10 per cent of sugar or by the glucose. In making currant jelly, also, apple juice and glucose are the foundation, and the jelly is flavored and colored bright red. People go largely by the label on the pail. (98, 99.)

2. *Acids and coloring matters.*—Mr. BERRY says the Chicago Sirup Refining Company, in making commercial jelly, uses an acid preparation to make the jelly firm, bought from the concern which prepares it. He does not know its composition, but declares it perfectly harmless; the pure-food commissioners in Michigan, Ohio, and other States have accepted it. Only a very small trifle is required in each pail. It has no antiseptic feature. Witness does not think an antiseptic necessary, having seen jelly a year old. He thinks that when old-fashioned domestic jellies ferment the trouble lies in the making. Home-made jelly is usually allowed to stand over night before it is considered well jellied, but jelly made with this preparation will be jellied in a few hours as well as it ever will. The company uses an imported coloring matter guaranteed to be a perfectly harmless vegetable color. An ounce of coloring matter dissolved in water is used in 50 gallons of jelly. Formerly aniline was used, which is poisonous. Witness does not know the composition of the coloring matter used, but the food commissioner of Ohio has passed upon it as satisfactory. In Michigan the jelly is sold uncolored, and branded "Imitation fruit jelly." Several years ago the Chicago concerns in the jelly business sent a man to Michigan, with the result that the acid was acceptable, but the jelly must be uncolored. The Michigan people made a ruling and then changed it in a little while, the last ruling being that jelly must be uncolored. The Chicago Sirup Refining Company had a quantity of colored jelly in Michigan sold before this ruling was made, and it was required to exchange it for uncolored jelly. The company wrote to the food commissioner explaining that the goods had been sold before his new ruling and that the exchange would involve considerable expense, but his answer was, "I send

you a copy of the law; act accordingly." Mr. Berry has reason to believe that aniline preparations are not now largely used for coloring jellies, though some concerns may use them. The vegetable coloring matter his company uses is not as cheap as aniline, but he does not think the difference in cost would be sufficient temptation to use aniline to a man who had any regard for the public welfare. (99-102.)

Professor HALLBERG, referring to Mr. Berry's admission that he does not know the composition of two substances used in jelly, says this probably means that either the processes of manufacture are patented or that the names are copyrighted, and that the manufacturers can change or modify the formula so that the person using them may have the very best intentions and yet be using sulphuric acid. Witness has been credibly informed that it is sulphuric acid that is used. The extent to which substances may be used to give the artificial effect to simulate the natural qualities as to taste, color, or odor is a very intricate and difficult question, which can be solved only by the most careful and elaborately planned research of scientific men. (108.)

Professor VAUGHAN says most of the jellies, including pear, quince, and pineapple jellies, are made from apples by the addition of flavoring ethers and aniline colors, and by the action of some dilute acid; generally hydrochloric acid in the preparations he has examined, but sometimes sulphuric acid is used. The acid breaks down the fruit and makes a jelly of it more readily than by the ordinary method. He thinks hydrochloric acid is not present in sufficient quantities, at least in the jellies he has examined, to do any harm; it is a normal constituent of the stomach. He objects very much to the use of sulphuric acid. (204.)

Professor MITCHELL mentions a case in Milwaukee where an acid undoubtedly deleterious to health was used in the manufacture of jelly from apple cores and parings. A Milwaukee manufacturer used small amounts of sulphuric acid which remained in his finished jelly, but he was willing to change his methods. (182, 183.)

Dr. WILEY, being asked whether muriatic or hydrochloric acid is a proper thing to use in jelly, says he should not consider a small quantity injurious, because the acid produced in the stomach during digestion is always muriatic acid. (28.)

Professor CHITTENDEN thinks it very doubtful whether the proportion of acetic acid which would be added to a glucose mixture to make it taste like jelly would be injurious to the human body. The quantity which a person would ordinarily consume in that way would probably be too small. But such products ought to be labeled for what they are, and not sold for something else. (424, 425.)

3. Proposed legislation.—Dr. WILEY believes there should be some law to prevent the marking of artificial fruit jellies as pure fruit jellies, because it is a fraud upon the consumer and unfair competition with honest manufacturers and fruit growers. (28.)

Professor VAUGHAN is in favor of permitting the use of dilute hydrochloric acid in jelly, with proper notice on the label. The flavoring and coloring of jelly should also be controlled by law. (204.)

VI. CONDIMENTS.

A. Generally.—Dr. WILEY says that nearly all condiments and spices, including coffee and tea, are adulterated by being mixed with some inert and harmless substance; it is very difficult to purchase condiments with a certainty that they are pure. He does not consider the mixing of them with other matters to be objectionable; many persons prefer to have their condiments reduced in strength in that way. The fraud is in selling the mixed article for the pure. "Fillers," consisting of ground inert matter colored to represent every form of spice and condiment, are manufactured in large quantities and sold to dealers in spices and condiments. Sometimes ground shells, such as peanut and coconut shells, are used; also flour colored with various materials, especially turmeric. The witness produced samples of fillers for the following articles: (1) Allspice and cloves, (2) black pepper, (3) cayenne pepper, (4) cinnamon, (5) ginger, (6) mustard, (7) cream of tartar; the first six consisting of ground shells of nuts or colored flour, and that for cream of tartar consisting of infusorial earth. (17-19.)

Mr. DELAFONTAINE says that when he investigated spices some years ago he found that almost all of them were largely adulterated with diluters, not necessarily injurious to health. (229.)

Mr. STEWART says that several years ago his company discontinued the handling of any except strictly pure spices, and turned them out under its own brand with a guaranty on every package; selling only to the trade and not to jobbers. He thinks that, as a rule, wholesale grocers who have their own roasting and grind-

ing plants, and who make a business of handling spices, sell a pretty good class of goods: but he believes that people who handle carts, hayrakes, and buggies, and give them away with a hundred pounds of spices, must handle a pretty poor grade of goods; they must make money somehow. The prices of certain goods which have been put on the free list are very low, and he thinks it has been found difficult at times to find adulterants. This has had a tendency to reduce adulteration. (78.)

Mr. MURRAY, a drug and spice miller of Chicago, says spices are adulterated in grinding. His business has 2 branches: (1) The manufacture of goods which are kept in stock, and (2) the manufacture of goods to order. This applies not so much to the drugs as to the spices. The goods manufactured and kept in stock are absolutely pure, and when a man wants to buy pure food he generally takes what is in stock. If he wants an adulterated article he gives the order, and it is made for him. Orders for adulterated goods do not amount to more than 5 per cent of the business. Some of the mixtures are made of cocoanut shells, and some from buckwheat middlings or bran. He has ground them for the trade, some men making a business of selling mixtures. Sometimes pepper shells are used in pepper, and mixtures of cinnamon and cocoanut shells for cinnamon. Sometimes there are mixtures made of corn or wheat flour, colored, baked, and ground up. Witness buys his mixtures sometimes in Philadelphia, and sometimes in Chicago. All spices are ground pure. If a man wants cassia and orders it, he gets it strictly pure. If he orders it in such a way that it means so many cocoanut shells, it is made for him, and he knows it. Witness does not put his name on it, but simply says it is a barrel of so and so, not stating whether it is pure or not. Pure goods are marked "strictly pure," or "pure." These mixed goods are not bought so much by jobbers in the city as by outsiders—"scheme men"—men who give away a cow or a mule, or a horse and wagon when you buy 10 pounds of nutmeg. Witness does not sell to the retailers, but only in barrels and boxes to the wholesale trade, which does not, as a general thing, order the goods adulterated. The most of his sales of spices are made to the drug trade, who are small dealers in spices. He thinks there is just cause for complaint as to the purity of ground spices, etc. (66-72.)

Professor HALLBERG says cocoanut shells are about as soluble in the stomach as the integuments of the spices themselves. (84.)

B. Pepper, cayenne pepper, etc.—Dr. WILEY has never seen unground pepper adulterated, but says it is very common to adulterate it in the process of grinding or after it is ground. (18.)

Mr. MURRAY says that he has had to adulterate pepper when it has been ordered that way for the trade at certain prices. If a merchant ordered a barrel of pepper at a price less than its cost he would have to put in a certain amount of shells or whatever the man might select. (66, 67.)

Mr. GEORGE W. SMITH, a flour dealer, says buckwheat bran is used by spice mills to grind and mix with their black pepper, buckwheat bran being black. For white pepper white bran is used. (134.)

Mr. DUFF, chemist of the New York Produce Exchange, says that pepper can seldom be got pure. He has found cracker meal in it, and ground corn and other refuse. (497.)

Professor JENKINS, of the Connecticut agricultural station, exhibited a sample of pepper made of acids and charcoal. This is furnished to the trade for mixing with genuine pepper. Professor Jenkins also exhibited a sample of cayenne pepper made of acids and colored with an aniline dye. (452.)

Professor HALLBERG explains that capsicum is the fruit of the cayenne pepper plant, which comes from Cayenne, in South America. He thinks there is not a pound of pure powdered capsicum in Chicago. It consists chiefly of red brick dust. Pure powdered red pepper is so hot and pungent that no one could possibly use it, and it is found necessary to reduce it. There is no especial harm done. Red brick dust is in many complaints one of the very best things that can be taken into the stomach. (84.)

Mr. CLIFF, a manufacturer of pickles, says he buys red peppers from farmers and grinds them up himself. He does not buy ground capsicum of the spice mills, the cheaper class of which adulterate it with ground meal, etc. (156.)

C. Mustard.—Dr. WILEY says that ground mustard is very often mixed with so much flour and turmeric that the quantity of pure mustard is very slight, half a teaspoonful sometimes having only the least flavor of mustard. (17.)

Mr. MURRAY believes that the mustard is generally adulterated with flour and turmeric. Some mustards are colored without being adulterated. It is a handsome article when colored. (69.) See also *Extent of adulteration*. Jenkins, p. 24.

Mr. DUFF, chemist of the New York Produce Exchange, declares that he has

found mustard to be largely exhausted. Few, if any, of the samples which he has examined contained the amount of oil of mustard which they should have. The great adulterants are starch and flour colored with turmeric. (497.)

Professor JENKINS, of the Connecticut agricultural station, exhibited a sample of mustard containing 20 per cent of plaster of paris. (452.)

Mr. CLIFF, a manufacturer of pickles, says he gets his mustard from a New York manufacturer, who has been furnishing it also to Cross & Blackwell and to a good many people in this country, who find it very satisfactory. (157.)

D. Ginger.—Professor MITCHELL mentions 1 case in which ginger was adulterated with old tarred rope to give it the necessary stringiness, but says this is not customary. (119.)

E. Cloves.—Mr. MURRAY says clove stems are used in cloves. They have a slight flavor of cloves and make a very good article. He does not think he has ever used anything else in cloves. Strictly pure cloves can be obtained. (69.)

Professor HALLBERG says the stems of cloves and the expanded flower in which cloves grow contain scarcely any of the oil of cloves, which is the valuable principle of the spice. The flower of cloves, which is the spice itself, contains from 10 to 15 per cent of volatile oil, representing the flavor of cloves, and a little resin, giving the pungency. (80, 84.)

F. Salt.—Dr. PIFFARD says salt is sometimes mixed with a small percentage of cornstarch to make it run more freely from the cruet, the cornstarch acting as a lubricant. Sometimes it is sold as absolutely pure. As a salt manufacturer, Dr. Piffard himself offers one brand of salt which is mixed with cornstarch in a small proportion, but that fact is stated on the label. (188, 190.)

G. Olive oil.—Dr. WILEY says the sale of cotton-seed oil for olive oil has been very extensively practiced in this country. Hundreds of barrels of cotton-seed oil go to France and Italy and return to this country as olive oil or mixed with olive oil. As far as food value is concerned there can be no choice between the two oils. The preference in favor of olive oil is a matter of taste. Some persons prefer the flavor of cotton-seed oil, but it sells for about one-fifth the price of olive oil. When it is sold as olive oil the profit is enormous and the fraud correspondingly great. In California a great many persons are engaged in the production of olive oil, so that this fraud affects American producers to a very large extent as well as the consumers. He has noticed some improvement, in that dealers have left the word "olive" off their bottles and sell the product as table oil, being careful not to use the name "cotton." (16.)

Mr. ROSSATI, an expert employed by the Italian Government, declares that 6,000,000 gallons of cotton-seed oil are produced yearly in this country, and that it is practically all sold either as salad oil or as olive oil. It is never sold under its proper name. In Italy the adulteration of olive oil has of late been rendered more difficult than in other countries of Europe by a high duty on cotton-seed oil. If there is now any adulteration there it takes place in bonded warehouses. The adulterating is chiefly done in this country. The people who are guilty of it can not be punished at law because they use fictitious names, and no individual's interest is specially affected, though the general interests are affected. The mixtures of cotton-seed oil and olive oil are sold as olive oil under foreign names, but not under the name of any actual firm. The temptation to this practice is exceedingly great, because cotton oil can be bought at 30 cents a gallon, while the cheapest eatable olive oil, duty paid, costs \$1.40. (446, 447.)

Mr. ZUCCA, president of the Italian Chamber of Commerce of New York, says that olive oil is much adulterated in this country, particularly in New York, Chicago, and New Orleans. He thinks that about two-thirds of the olive oil sold in the United States is mixed. Professor Rossati, according to Mr. Zucca, has found as much as 97 per cent of lard oil and other oils in some samples. Almost all the brands of respectable houses on the other side are imitated here. The least possible difference may be made, such as one letter more or one letter less in the spelling of the name of the maker, in order to avoid criminal prosecution. Pure olive oil costs here at wholesale, including duty, \$1.55 a gallon, while the best cotton-seed oil can be bought in quantities at 39 cents. The substitution is a great detriment to the trade of importers who are doing a legitimate business. It ought to be made a punishable offense to mark cotton-seed oil with a label which says olive oil. (485, 486.)

Mr. FURBAY says it is difficult to get pure olive oil. Recent reports show that the greater part of the oil exported from France is mixed with peanut oil. When this is labeled olive oil he considers it fraudulent. (61.)

Professor JENKINS says that the Connecticut agricultural station finds about half of the brands of olive oil to be pure, of better or poorer quality, and about half to contain mixtures of cotton-seed oil and oil of sesame. (453.)

Mr. HOBBS says that he has bought olive oil in Marseilles and found the word *Cincinnati* on the package. It was sold for pure Italian olive oil, and the dealer thought that *Cincinnati* was an Italian port. (496.)

H. Vinegar.—Dr. WILEY says that in this country the term "vinegar" is usually used to imply cider vinegar. In England the term "vinegar" means malt vinegar. In Europe vinegar is made almost exclusively by the fermentation and oxidation of grains. There are 3 classes of vinegars in the market—cider, alcohol, and malt vinegar. Cider vinegar, being preferred in this country, would, if properly protected, bring a higher price than the others. In its preparation there is first a fermentation which converts the sugar into alcohol, making hard cider. The next fermentation converts the alcohol into acetic acid or vinegar. Malt vinegar is made in the first instance like beer, and is then subjected to further fermentation, which converts the alcohol into acetic acid, the acid principle being the same as in cider vinegar, but the extract with which it is associated being the extract of the grain used. The witness considers both of these products legitimate forms of vinegar. In this country there is an enormous quantity of another form, made by oxidizing the low wines of the distillery by allowing them to trickle over beech shavings, making vinegar which has scarcely anything in it but acid and water. This is artificially colored, and probably a little dextrin or other substance is put in to give it body. Malt vinegar is not at all deleterious, and low-wine vinegar is also wholesome in very small quantities, but their flavor is not as good as that of the apple. The consumer can not tell what he is getting, but low-wine vinegar, which is the cheapest, probably has more sale in this country than all other kinds put together. The witness sees no objection to the use of low-wine vinegar in pickling, but says all vinegars should be sold under their proper names. (24, 25, 234.)

Professor FREAR says that on examining the vinegars sold in the mining region of central Pennsylvania some years since, he found that nearly three-fourths of those sold as cider vinegar were low-wine vinegars artificially colored. Some samples branded as cider vinegar were made from the wastes of sugar refineries. In order to avoid the simpler methods of detection of substitutes there has recently been produced a large amount of low-wine vinegar to which the standard amount of solids has been added in the form of cheap apple jelly, made from parings, the residue left in the manufacture of dried apples. (523, 529.)

Professor EATON, of Chicago, formerly chemist to the Minnesota dairy food commission, believes that vinegar is adulterated more extensively than any other article of food. It is invariably diluted, vinegar as ordinarily made being far too strong for consumption. In England sulphuric acid has been added to a certain extent as a preservative, but not in this country. He knows of no foreign acids having been added to vinegar in this country. The principal adulteration of vinegar is the substitution of colored low wine, beer, and malt vinegars for cider vinegar. He believes that these vinegars are not injurious to health, but differ from cider vinegar only in flavor and strength. Vinegar prepared by oxidation of wines contains as much as 10 or 12 per cent of acetic acid, and must be diluted before it is consumed, because it is entirely too strong. About 4 or 5 per cent is probably as high a degree of strength as should be used. He has examined hundreds of vinegars as low as 2, 3, and 4 per cent. Wisconsin requires 4 per cent and Minnesota 4.5 per cent of acetic acid in vinegar. He thinks the interests of the country would be subserved by labeling each kind of vinegar as the product of a certain article, and he would establish a minimum standard, with a label law or brand law for any percentage of acid higher than the standard. (233, 234.)

I. Ketchup.—Professor JENKINS states that tomato ketchups are largely made from the cores and the skins of the tomatoes, cooked, strained, and dyed with coal-tar dye and preserved with salicylic acid or benzoic acid. Out of about 45 samples examined by the Connecticut agricultural station, 6 were free from antiseptics, 27 contained salicylic acid, and 8 contained benzoic acid. (452, 453.)

Dr. WILEY says ketchup would not keep 24 hours after opening without a preservative, and contains salicylic acid in 99 cases out of 100. (44.)

J. Pickles.—Mr. CLIFF, a manufacturer of pickles, says that white-wine and cider vinegars are the only kinds of vinegar he uses. Quantities of cider vinegar are used for piccalilli. He uses no coloring matter whatever. Some manufacturers use coloring matter to produce a bright-green color, but only in goods for export and goods which are expected to stand a long time on the shelf. It is not necessary for local goods. Alum is used a good deal in the manufacture of pickles, for export trade especially; not to his knowledge in pickles sold in the United States. Pickles are sometimes prepared in copper kettles, causing them to turn green. (155, 156.)

Professor PRESCOTT believes alum is used somewhat as a mordant in fixing the color of pickles. (199.)

K. Horse-radish.—Mr. CLIFF says there is considerable adulteration of horse-radish. Indian turnips are used to fill up the bottle and give the color of horse-radish. If too much of this is eaten it is very unhealthful. The United States Dispensary says it is very good to a certain extent, but it does not belong in food. The strongest horse-radish is too bitter and not good for the stomach. It loses its strength very rapidly, even when hermetically sealed; light and sun affect it as they do pickles. (156, 157.)

VII. TEA AND COFFEE.

A. Tea.—1. *Its comparative purity.*—Professor JENKINS states that among several hundred samples of tea examined by the Connecticut agricultural station, none was found to give evidence of intentional adulteration. (452.)

Dr. WILEY says that the adulteration of tea is not so common as that of the other condiments. (18.)

2. *Impure and exhausted tea.*—Mr. DUFF, chemist of the New York Produce Exchange, says that he found one sample of tea which contained pods of seeds and some hair, though these impurities may have been accidental. But the weight of the sample was largely composed of stems, and theine was almost entirely lacking. It had the appearance of being exhausted tea; that is, tea which had been used once and then collected and dried. (498.)

3. *Facing and coloring.*—Mr. DUFF says that tea is "faced" by the use of ultramarine or other substances, either in powder or in solution, which put a surface on it and change its appearance. It is sometimes weighted at the same time. (499.)

Dr. WILEY says the green color of tea is often secured by the addition of a coloring material, and that tea is made heavier by mineral substances; sulphate of lime or sulphate of barium being sometimes added, so that it sticks to the leaf and gives it a better appearance and greater weight. Prussian blue, indigo, turmeric, plumbago, and soapstone are also used. The finest teas are very often adulterated and colored in this way, and this may be done to such an extent as to be injurious. (43.)

4. *A tea standard proposed.*—Professor HALLBERG does not see how a tea taster can possibly arrive at the real consistency of tea by the taste, and considers it better to have a chemical analysis and know what the tea should consist of, requiring it to come up to that standard. (84.)

5. *Tariff.*—Mr. STEWART says the duty of 10 cents a pound on imported teas has raised the price of tea and has shut out all poor, trashy stuff. The standards adopted by the American trade are higher, and to-day we are consuming the best tea of any country except Russia.

B. Coffee.—1. *Valuable constituents.*—Professor HALLBERG says that coffee as defined in the Pharmacopœia is the seed of the *Coffea arabica*. The immature seeds of coffee do not contain any appreciable amount of caffeotannic acid, the principle which the seed must contain in order to be coffee as defined by the Pharmacopœia. (80.)

Professor FEAR states that it is a great question whether the chief food or drink value of coffee is dependent upon the caffeine. The physiological properties of tea and coffee are different, yet the principle is the same in both cases. (493.)

2. *Damaged coffee.*—Mr. STEWART, a wholesale druggist and director of the W. M. Hoyt Company, brought to the committee some samples of coffee shipped from Brazil and reshipped from Hamburg to this country, consisting of overripe or dead beans which had become sour, the trade name being "black jack." It is sold as coffee, but has no value for the stomach. The drinking of it, in Mr. Stewart's opinion, creates a perverted taste. Germany receives coffee sometimes in the hull and sometimes in the bean, and then it is hand picked. Black jack can not be sold in Germany, but is imported into this country and mixed with sound coffee here. The price of black jack (May, 1899) was very high—5 cents a pound—because there was a large demand for it. A preparation is often put on to hide the defects and cover up the fraud and reduce the shrinkage, making it shine. Under natural conditions Germany would not ship any coffee to America, because the freight charges are excessive. The spoiling of coffee from mildew can be avoided. They have in Brazil machinery to treat it in such a way that it comes out very fair coffee. We use mostly Brazil coffee, 11,000,000 bags of 25 pounds each being imported. Mr. Stewart has always believed that black beans in coffee are worse than an adulteration—worse than chicory or anything that can be put in. He thinks them deleterious. Arbuckle's coffee has black jack in it, and these package coffees are what the masses are drinking. (73-78.)

Mr. JARVIE, of Arbuckle Brothers, says that Brazil produces a very fine coffee and a very poor coffee and all grades between. The grades are made by imperfections, such as black beans, sticks, stones, dirt, etc. The coffee is sorted by

hand, but not generally in this country. Mr. Jarvie is not acquainted with the term "black jack" as applied to coffee. He has seen a coffee of such low grade as to be practically all dead beans. This is the refuse. It does not come largely from Germany, but more from Central American countries than elsewhere. The quantity is very small, certainly not 1 per cent of coffee imported. Arbuckle Brothers do not handle that kind of coffee, and Mr. Jarvie does not know what is done with it. (428, 429.)

Mr. THOMPSON, of Chicago, submits an analysis of 5 standard grades of coffee as established by the New York Coffee Exchange, whose standards form the basis of all importations of Brazil coffees, or five-eighths of the total, showing that the damaged berries vary from 2½ per cent of the total weight in No. 5 to 20 per cent of the whole in No. 9, and constitute from 11 to 18 ounces per pound in triage. In No. 7, on which all transactions on the exchange are based, the damaged berries are found to the extent of 6 per cent by weight, or 8½ per cent by count. Owing to the enormous demand from packers of low-grade coffee for a low-priced article, the street or market differences between the different grades are only one-fourth of a cent, though the exchange fixes the difference at half a cent. (48.)

3. *Glazing*.—Mr. DUFF, chemist of the New York Produce Exchange, says that it is sometimes difficult to draw a line between what is adulteration in the treatment of coffee and what is not. When coffee is roasted, much of its water is driven off, and its weight is greatly diminished. To avoid that, coffee is glazed before roasting by the application of a suitable solution, which diminishes the evaporation in roasting, and so retains a larger part of the water of the coffee. (499.)

Professor MITCHELL has met with considerable coffee that is coated or glazed to increase the weight and cover up imperfections. The black beans are bought very cheaply. In putting on the glaze, which is some kind of dextrin, a coloring matter like hematite, a mineral iron-ore paint, is added, and is fastened to the beans by the dextrin, making them a uniform coffee brown. (121.)

Mr. STEWART says everyone in the trade glazes coffee, gum tragacanth, glucose, and gum being used. Thus the coffee is improved in appearance, but not for drinking. Mr. Stewart also says Lion coffee is made by the trust and sold in paper packages with stuff in it to make it look nice and deceive housewives into the idea that it is self-clarifying. (75, 76.)

4. *Adulteration*.—Dr. WILEY testifies that very extensive adulterations of even the unground coffee berry have been practiced. A little molasses and colored flour is molded to resemble the coffee berry in shape. He has found as much as 25 per cent of coffee purchased in the open market to be artificial, but no hasty buyer would notice the false berries. Even the consumer who buys coffee berries in the green is sometimes cheated, but this is not common. (17.)

Professor JENKINS, of the Connecticut Agricultural Station, says that coffee that is sold whole is not often adulterated. There was formerly a firm which made artificial coffee beans, but the agricultural station no longer finds them in the market. Crushed peas and chicory are often found in coffee. Ground coffee sold for 25 cents a pound or under has been extensively adulterated with chicory, crushed peas, and pellets made of pea hulls. Imitation coffee is made of wheat middlings or flour, with possibly a little gum, molded into a cylinder, perhaps of the size of the little finger, roasted, and crushed. The price of genuine coffee has gone down, so that there is not so much profit in adulterating it as there formerly was, and the publication of the facts with regard to adulteration is believed to have had a good effect. An expert can detect the coffee adulterations with the naked eye, but it is necessary even for an expert to confirm his impressions by microscopic examinations. In 1896 over 80 per cent of the cheap ground coffee examined was adulterated; in 1897, 70 per cent; in 1898, 40 per cent; in 1899, only 20 per cent. (451, 452.)

Dr. WILEY says that ground coffees are often adulterated with chicory. He does not consider this injurious. He rather likes chicory mixed with coffee. It gives it body and a richness of taste which pure coffee lacks. In France chicory is almost universally used in coffee. He objects, however, to paying 40 cents a pound for coffee which is half or two-thirds chicory, worth only 8 cents a pound. (18.)

Professor MITCHELL says that a few years ago, when coffee was quite high in price, farms were started north of Milwaukee for raising chicory in large amounts. Fraudulent coffee beans were manufactured all over the country and sold, roughly, at 9 cents a pound. They had a little crease in the center and looked like coffee beans when roasted. Professor Mitchell thinks coffee adulterated with chicory a permissible compound if properly labeled, because chicory will make a desirable drink, though it does not produce the same chemical or physiological effects as coffee. (119, 120.)

Professor VAUGHAN says ground coffees are largely adulterated; some of them contain no coffee at all. Father Kneipp's coffee contains none, but many people who buy it think they are getting a special brand of coffee. (205.)

Mr. STEWART says nobody uses chicory in coffee now. When coffee got to practically the same price as chicory there was no inducement. Coffee in the berry could not be adulterated with chicory, because the consumer would know it. No one sells any ground coffee except in little country stores, where they have packages of adulterated coffee. (75, 76.)

Mr. JARVIE, of Arbuckle Brothers, says that coffee is generally improved by blending. Coffee of one grade or one country is seldom sold by itself. Arbuckle Brothers use no adulterants with their coffee, and coffee is now so cheap that it would not pay anyone to do so. If any dealer now adulterates coffee, he must sell it to a very poor class of trade. (429.)

5. *Legislation.*—Mr. THOMPSON expresses the hope that the analysis of 5 standard grades of coffee as established by the New York Coffee Exchange, which he submitted to the committee, may assist the committee in establishing a standard to govern future importations and exclude triage or inferior coffee, for which this country has been the dumping ground of the world. He finds that a large number of importers and dealers favor the exclusion of all coffees containing, at the time of shipment, more than 24 or 3 per cent of damaged berries, hulls, sticks, and valueless foreign matter. He considers it necessary to provide for such coffees as may become damaged in transit, particularly fine East India coffees, which are still shipped in sailing vessels not of the most seaworthy kind, and often become damaged from moisture, wet coffee turning black if not immediately dried. The damaged portions of these cargoes are skimmed; that is, the damaged part is removed from the sound and usually sold as "skimmings," or damaged coffee, the sound portion after skimming being known as "made sound." There are two grades of "skimmings," G/S (good skimmings) and P/S (poor skimmings.) The G/S are often hand-picked and put with the "made sound;" the P/S are usually too badly damaged for this. The pickings from this and similar coffee form the triage coffee. Mr. Thompson believes that the skimming and hand picking of damaged coffee should be done under the supervision of a Government inspector, with authority to order the triage destroyed if not exported within a certain period, and asks if it is reasonable to expect a 3-cent duty to stop the importation of triage when a 5-cent duty did not do so some thirty years ago. (48, 49.)

Mr. STEWART says that if there were a duty on coffee, "black jack" would have to stay out. But he suggests prohibiting the importation of black jack or of any coffee with black beans in it; also prohibiting the use of glazing, which improves the appearance but does not improve the coffee for drinking. (74-77.)

Professor MITCHELL wishes to prohibit the glazing of coffee. (121.)

Professor HALLBERG says a standard could be fixed in coffee. To say that one grade of coffee may contain 10 per cent of caffeannic acid would be an excellent criterion, because black jack contains scarcely any, being simply immature seeds in which the acid has not been developed. Its use is not adulteration, but sophistication. (83.)

VIII. MALT LIQUORS.

A. *Ingredients of beer* (See also *Beer preservatives*, pp. 105-108.).—1. *Malt and malt substitutes.*—Mr. WYATT, a brewer's chemist, defines beer as "a nutritive infusion of maltose sirup made bitter with hops and fermented with yeast." He says that the old German method of making beer was to make an infusion of malt, boil it with hops, and ferment it with yeast. Such beers could be made salable only by keeping them a very long time in cold storage. This produced a large amount of alcohol, by the complete fermentation of the maltose present and the various other complex sugars, which ferment only during a very long storage period. It also gave the beer a marked acidity or hardness. This method of manufacture does not suit the climatic conditions of the United States nor the palates of American consumers. It is desirable to make a lighter beer—that is, one which contains less alcohol. Moreover, our American malts contain more albuminous matter than malts made from German or English barley. This albuminous matter gives nourishment not only to the yeast, but also to the various organisms which swarm in the air, and the excess of it gives the beer a cloudiness and a bad taste. The cloudiness is more objectionable here than it would be in Germany, even if it existed there in the same degree, because the American always drinks his beer in a glass, while in Germany beer is always drunk out of a mug.

These conditions, which were found objectionable in America, led to scientific investigations for the purpose of overcoming them. During the process of malt-

ing a substance called diastase is produced, which has the power, under the influence of moisture, of transforming starch into maltose sugar. Malt contains much more diastase than is necessary to convert the starch which it contains. The practice was therefore adopted of adding such a proportion of starch from other sources as the diastase present was capable of changing into sugar. From 20 to 35 per cent of starch-bearing cereals is added to the malt. The choice depends mainly on the current market price. Generally rice and corn are used; sometimes a little raw barley.

Some chemists and some excellent brewers have considered that the preparation of the maltose from the raw cereal in the brewery consumes an unnecessary time, and that a sirup otherwise prepared, but to all intents and purposes the same, might advantageously be substituted. This sirup is glucose, which is prepared from starch; in practice from the starch of Indian corn.

Mr. Wyatt declares that it is impossible to distinguish, either by the taste or the flavor, or by any means known to chemistry or physics, between a beer made entirely from malt and a beer made with the addition of any of the substitutes which he has discussed. The beers made by the newer processes are just as wholesome and as nutritious as those made from malt alone. (401, 402.)

Mr. SCHWARTZ, a consulting brewer, considers a proper definition of beer to be, "a fermented saccharine infusion to which some sort of bitter has been added." He does not think that other substances than malt, hops, and water are excluded by the common understanding of the word beer. Certain substances—malt adjuncts rather than malt substitutes—are even preferable to malt by itself. There is an excess of nitrogenous substances in malt. A beer which contains an excessive amount of nitrogenous matter is likely to have poor keeping qualities. American malts do not contain a very large amount of nitrogenous substances beyond what is desirable; but the addition of 20 or 25 per cent of unmalted grain is advantageous. It is impossible to obtain a fermentable liquor from rice, corn, or any unmalted cereal without subjecting it to the process called mashing, whereby the starch is changed into sugar. For this process malt is necessary. A certain amount of malt will convert the starch in a certain amount of unmalted grain. Malt must always, therefore, be the principal constituent.

The use of sugars is not to be regarded as an adulteration. Both glucose and cane-sugar sirups are used as malt adjuncts, and occasionally some honey also. The whole amount of the substitutes, including sugars in sirups and unmalted cereals, would not exceed 25 per cent of the amount of malt. (370.)

Mr. THOMANN quoted from the report of a British parliamentary commission which investigated the composition of beer 4 years before. This commission reported that sugar had been intermittently permitted in beer for a century, and that for over 50 years its use had been continuously permitted by acts of Parliament, and that 18 years before its report Parliament had deliberately granted complete freedom in the use of all wholesome materials. Under these circumstances, says the report, it must be presumed to be public knowledge that beer is not always made from malt and hops exclusively, and consequently that a person who demands beer and receives a beer which contains a portion of malt substitute is not thereby prejudiced. The report further expresses the opinion that while an all-malt brewing made from the best English and foreign barley is perhaps the best for some kinds of beer, the medium or lower qualities of barley malt are improved by the addition of a moderate proportion of good brewing sugar.

Mr. Thomann confirms the admission that the very best malt is the best brewing material for certain kinds of beer, but he says it can not be got. More than 35,000,000 barrels of beer are produced annually in the United States. Perhaps 56,000,000 bushels of barley are raised, and one-third of that barley is not good enough for malt. Beer is improved by the addition of unmalted cereals to the common grades of barley malt. Glucose is used to the extent of some 15 per cent of the whole amount of saccharine material. It is not injurious to the health and does not injure the quality of the beer. There are brewers in New York who have advertised for many years that they make an all-malt beer. Their business has not increased, while the business of other brewers who follow the common methods has multiplied many times. This shows that the public taste does not approve an all-malt beer. Some malt is necessarily used. The starch in the unmalted grain is converted into sugar by the malt which is used with it. A beer made of two-thirds malt and one-third rice is admitted the world over to be superior to all-malt beer. In Germany those who make and sell rice beer take pains to let the public know it. (351-356.)

Dr. WILEY says that the substitution of other substances for malt is practiced almost universally in this country, even by the largest brewers, in making the cheaper grades of beer. The demand for cheap beer leads the brewers to substitute barley, glucose, rice, and hominy grits made from Indian corn, for malt.

Rice is very commonly substituted for a portion of the malt when a very light beer is desired. Glucose or grape sugar substitutes are made in all large glucose factories, and are used most of all for very cheap beer. No beer is ever made without some malt, but the amount of substitution may reach as high as 60 or 70 per cent; that is, a low grade of beer can be made consisting of 30 per cent malt and 70 per cent grapesugar. The grape sugar is used because it requires no action of diastase to prepare it for fermentation, whereas hominy grits or rice must be acted upon by diastase or malt before fermenting, so that more malt is required. It is grape sugar, the solid product of the glucose factories, which is always used in the breweries. The product is not necessarily deleterious to health, but is not pure beer. Pure malt beer has a better flavor, and in the opinion of the witness is not so apt to produce acidity of the stomach or other digestive troubles. In 9 places out of 10 where fermented beverages are sold the purchaser will get a substitute beer, though certain brands of beer are pure. It is almost impossible for the consumer, unless a connoisseur, to tell the difference except by chemical analysis. (19, 21.)

Mr. BUSCH, president of the Anheuser-Busch Brewing Association, states that the beer of this company is made entirely of barley malt, hops, yeast, and water, except that some rice is used in order to make a very pale beer of the Bohemian type. This company has never used any corn or glucose or preservatives or coloring matter. Corn does not make a high grade of beer, because of certain oily substances which it contains. They are partly transformed into fusel oil after fermentation. The quantity of fusel oil is not large enough, in Mr. Busch's judgment, to be injurious to health.

Rice is used not to cheapen beer, but to produce a very pale beer of the Bohemian type. It is twice as expensive as barley malt. Mr. Busch is not opposed to the use of corn, though he uses none himself. He does not think that there can be any good evidence that the use of unmalted grains in brewing is unwholesome. (487, 493.)

Dr. PIFFARD, of New York City, believes that beer made from barley malt is in the main a wholesome drink for healthy people and sometimes a useful drink for those who are ill, but he believes very positively that beer made from corn products and from rice is not wholesome, but distinctly injurious. He also believes that new beer and new ale are not wholesome, and that a great deal of the beer offered for sale has not been kept as long as it should be. Up to within a few years he hardly thinks that a glass of what he would regard as wholesome beer, brewed in the State of New York, could be bought in New York City; but during recent years one brewer after another has been making wholesome beer. His impressions with regard to the character of beer are derived from its physiological effects. Dr. Piffard mentions two difficulties in the way of efficient pure-beer legislation: (1) A document issued from one of the Departments of the United States Government rather favored the use of what he considers improper ingredients in beer. (2) The general public, at least in New York City, prefers the improper beer to the proper beer. There are many persons with whom the imported beers do not agree. Dr. Piffard's impression is that they contain preservatives to a considerable extent. (188, 190.)

Mr. ZELTNER, a lager-beer brewer, says that he makes one brand of beer, called old-fashioned beer, of nothing but barley malt and hops, with yeast and water. The use of unmalted grain, such as corn, in partial substitution for malt, gives a beer of lighter color, and perhaps one that does not spoil so readily, but a beer of worse flavor and less nourishing qualities. Such a beer is cheaper, and Mr. Zeltner makes some of it to meet competition; but the all-malt beer is more wholesome. It is not true that a sufficient supply of malt can not be got for the whole product of beer. Plenty of good barley is raised in this country, and more would be raised if it were demanded. It would be better for the farmer to exclude corn from beer, because the farmer gets a better price for barley than for corn. (456-458.)

Mr. LIEBMANN says that for 10 or 12 years he has advocated the use of malt and hops only, but the taste of our consumers prefers the rank beer which is produced by the addition of some raw or unmalted grain. Mr. Liebmann admits that it is doubtful whether the addition of unmalted corn can be detected in the finished beer. Rice might, he thinks, be detected. Mr. HUPFEL says that he has experimented by making beer of rice and corn, and rice and grits, and rice and glucose, and has found that nobody "could say which was which out of the four different kinds," the fourth kind being apparently made from malt alone. Mr. BROWN says that an all-malt beer is injured by the excess of albuminoids which it contains. Too much of them tends to make the beer sour. Rice and corn contain practically no albuminoids. (394-396.)

Mr. HART believes that the craving for beer, which exists particularly among the working people, is an inevitable result of the character of their food, and

particularly of the treatment to which wheat is subjected in the process of preparation. The bran of the wheat contains substances which are absolutely essential to the nourishment of the body, and particularly of the brain. Persons who live on such defective food as the common bread of white flour crave the materials of which they have been deprived; and in beer they find them. If people were fed on whole-wheat food the desire for beer would disappear. The brown bread of Germany is what gave the Germans their superiority over the French in the Franco-Prussian war. Beer should be made from malt and hops. Glucose goes to make adipose tissue. This makes a man heavy and handicaps his brain. (362-366.)

Professor CHITTENDEN does not think that unmalted cereals, like rice or corn, partially substituted for malt in beer, are injurious to health. (424.)

Professor HALLBERG does not consider glucose as bad as a substitute for malt in beer as when substituted for sugar, because the sugar from the malt is converted into glucose in the making of beer. All sugar needs to be converted into glucose before it can ferment and form alcohol. He prefers beer made of hops and malt to beer made of glucose, and thinks every other consumer should have the privilege of choosing. All whisky is made from glucose. The starch of the corn is first changed into glucose, which is then fermented and turned into alcohol. (82, 83.)

Mr. LIPPE asserts that Canadian malt is the best material for making beer, and that the high tariff, by shutting out Canadian barley, has compelled brewers to resort to worse materials. Mr. BROWN asserts that as good barley is grown in the United States as anywhere in the world. Mr. LIEBMANN says that when the tariff on barley was first enacted that grown on this side of the border was not so good as that from Canada, but that our farmers have improved their product, and brewers can now get as good malt as ever. (393, 394.)

Mr. THOMANN, secretary of the United States Brewers' Association, says that the brewers will not make any fight for the privilege of using glucose. They would object to a law which forbade them to use it and did not restrict the liberty of other manufacturers. Glucose is used by candy makers in much larger proportion than by brewers. Only perhaps 15 per cent of the saccharine matter in beer may be glucose. Mr. Thomann understands that the very best candies contain as large a proportion as this, that the medium grades contain from 40 per cent to 60 per cent, and the lower grades 75 per cent. (354.)

Mr. OEHNE, a brewer, says that a pure malt beer is almost unsalable in this country; it is too strong and heavy. Corn and rice, unmalted, are added to make a beer more suited to the popular taste. Mr. Oehne believes that these materials make a beer quite as wholesome as that from pure malt, and more palatable. There is no reason why glucose also should not be used. (295.)

Mr. FECKER says that corn beer is lighter to the tongue and more palatable than malt beer. The degree of fermentation is not so high; that is the cause of the public preference for it. Malt beer is not necessarily heavier than corn beer, but there is a difference in the degree of fermentation, and consequently a difference in the taste. (299.)

Mr. BROWN, president of the Long Island Brewery, states that his beer is made of hops, malt, grits, and sometimes grape sugar. He distinguishes grape sugar as a solid substance from glucose as a liquid. Mr. Brown uses nothing which he does not consider perfectly healthful and proper for people to drink. He believes that the chief cause of brewers being occasionally blamed for making poor or bad beer is the subjection of the beer to unwholesome conditions in the retailer's hands. If the beer is drawn through filthy pipes it will come out full of bacteria which do not belong to it, and much changed in character. (385, 389.)

Mr. LIPPE, president of a brewing company, says that his beer is made entirely from grain and hops. Rice and hominy are used as well as malt; it depends on the market whether he buys one or the other. (380.)

Mr. HUFFEL, a brewer, says that his beer is made of hops, malt, and corn. He does not use any rice. The corn which he uses is unmalted and is called hominy. It is rather finely broken; it is sifted out of the coarser hominy. (379.)

Mr. HACHEMEISTER says that the brewing company of which he is treasurer uses some corn in its beer, besides hops and malt, but no glucose. He believes corn is used to make the beer lighter. (415.)

Mr. BAUER, brew master of the F. & M. Schaeffer Brewing Company, says that this company's beer is made of hops, malt, and water, with some cerealine, which is a preparation of corn and rice. Very little coloring matter is used. Nothing is added which is not healthful and good for people to drink. In Mr. Bauer's experience in Germany, before he came to this country in 1870, he used hops, malt, water, and a little rice. The methods of brewing in this country are the same as in Germany. (390.)

Mr. KRUESLER says that he uses a little rice in order to make a pale beer. The rice is not over 20 per cent of the material. He does not use corn or glucose or sugar. (377, 378.)

Mr. WIGAN, a brewing master, says that he uses grape sugar in ale and glucose in beer. The percentage of glucose would be from 7 to 10. He also uses perhaps 20 or 25 per cent of unmalted corn as an adjunct to the malt. The use of the unmalted grain gives a light, sparkling beer such as the popular taste now demands. Consumers now demand a lighter beer or ale than formerly. (375, 376.)

Mr. EVANS, a brewer of ale and porter, says that his materials are malt and hops and sometimes corn. (416.)

Mr. PABST states that his beer contains no glucose. (812.)

2. *Hop substitutes.*—Mr. SCHWARTZ says that no substitute for hops is used in this country to his knowledge. When hops are very cheap extracts are made from them to be used when hops are high. This is not a substitution. Lupuline, the meal contained in the hop cone, is also used; but this is a part of the hop itself. It is obtained by tearing open the cones and sifting out the meal. It is impossible to substitute any other substance for hops, because there is no other wholesome bitter which will take their place. (371, 374.)

Mr. WYATT declares that he has never met with an instance in which any substitute for hops has been used in this country. He has seen it stated in the newspapers that aloes is used, but he has never been able to trace the stories and he thinks they are purely imaginary. Aloes would be a very undesirable addition to beer. During the last 13 years he has analyzed 20,000 samples of beer, and his analysis has been such that he would certainly have discovered aloes if any had been present; but he has never found any. He has never analyzed any ale or porter, foreign or domestic, in which he found any substance which he considered deleterious to the public health.

Mr. Wyatt does not count hop extract a substitute for hops. It is simply the essential principles of the hops in a small bulk. It is used to a very limited extent. When hops are very cheap, brewers sometimes buy large quantities and have an extract made to be used when hops are dear. (403, 411.)

So far as Dr. WILEY knows, no substitutes for hops are used in this country by any reputable brewer, but there is a difference in the character of the hops, which range in price from 77 to 17 cents a pound. (19-21.)

Mr. BAUER, a brew master, who learned his trade in Germany, says that he has never used any substitute for hops, either in Germany or in America. (390.)

Mr. WIGAN, a brew master, says that he uses no substitutes for hops. (375.)

Mr. LIPPE, president of a brewing company, says that he uses no substitute for hops. (381.)

3. *Defective materials.*—An affidavit of the managing director of Arthur Guinness, Son & Co., Limited, expresses the opinion that stout brewed from defective materials must suffer in flavor and stability. It states that the malt used by the Guinness Company is carefully selected to exclude any excess of moisture, which might cause an undue formation of lactic acid in the stout, and to exclude insufficiently cured or moldy malt, or grain insufficiently modified in the malting process. (544, 545.)

Mr. WYATT says that the boiling of the wort for from 2½ to 3 hours would remove any injurious effects from any musty or deteriorated material which might enter into the beer. The hops would also help. (409.)

Mr. FECKER denies that the use of preservatives is increased by the use of cheap malt or hops. Cheap hops contain less of the hop extract than better ones, and do not give the beer so good a flavor. That is the only difference. (299.)

Mr. OEHNKE denies that the use of cheap or unripe or imperfect hops and barley would make it necessary to use a preservative in beer. The only difference that would arise from the use of inferior materials would be that the beer would contain less alcohol. It is true that alcohol is the element which preserves the beer. (297.)

Mr. ZELTNER, a lager-beer brewer, says that one malt may give a larger percentage of extract than another, but an extract of poorer quality. The difference is produced by the method of malting. An honest brewer ought to look for the quality of the extract rather than the amount. (458.)

4. *Adulterations.*—Mr. PLAUTZ declares that no adulterants are used in the manufacture of beer. One can use a lower grade of material, and so make a cheaper grade of beer; but it is not an adulterated beer. (301.)

Mr. THOMANN, secretary of the United States Brewers' Association, declares that this association has repeatedly placed itself on record as utterly opposed to the use of any adulterations which are injurious to health. The brewers have contributed largely to the Pure Food Congress, and have by resolution approved its action. The brewers are also opposed to any adulterations which lower the

quality of the goods. The brewers do, however, claim the right to choose their own materials, provided they choose materials which are wholesome and not injurious. (351, 352, 356.)

Mr. SCHWARTZ says that isinglass, which is composed of fish bladders, is used to settle or clarify the beer. Nothing of it is dissolved. It settles to the bottom and is removed with other suspended matters. (371, 372.)

5. *Color of beer.*—Mr. BUSCH says that he uses no coloring matter in beer, but that the color is determined by the temperature at which the malt is dried. For dark beer malt is prepared at a temperature of about 65 degrees Réaumur; for light beer, at about 45 degrees. (489.)

Mr. LIPPE says that for coloring beer he uses dark malt, or sometimes burnt sugar. (381.)

Mr. SCHWARTZ, a consulting brewer, says that very little coloring matter is used in beer except the colored malt. Sometimes burnt sugar is used, but the quantity is small. (371.)

Mr. WACKENHUTH, a brew master, says that he uses caramel malt and burnt malt for coloring beer. (418.)

B. *Process of manufacture.*—1. *Generally.*—Mr. WYATT describes the process of the manufacture of beer and ale. When the beer has been boiled in the kettle and brought to the required gravity or strength, it is sent over a cooler into a large receiving vat, and there mixed with yeast. Yeast is a plant which is propagated in the brewery from year to year as other plants are propagated in the ground. For every pound of yeast which is planted in the beer a crop of 5 pounds of yeast is developed. In the manufacture of ale the yeast rises to the top; in lager beer the yeast settles to the bottom. This difference depends upon a difference of temperature; ale is fermented at a higher temperature than beer. The yeast in the process of growth breaks down the maltose sugar in the solution and decomposes it into practically equal parts of carbonic-acid gas and alcohol. The carbonic-acid gas passes off; the greater part of the alcohol remains in the beer. In the present state of scientific knowledge it is possible to regulate the mashing process so that the resulting beer shall have any desired composition and any desired per cent of alcohol.

The fermentation takes about 10 to 18 days. By that time the beer has lost about 55 per cent of its original gravity; if it originally showed 12 on the scale, it now probably shows 5 or 5½. Then the yeast is allowed to settle to the bottom and the fermented beer is taken to the storage cellar, where its temperature is reduced to the point at which bacteria or foreign organisms will not work. This temperature is about 33 or 34 degrees Fahrenheit. Here the beer remains until all the albuminoids have been deposited, and the beer is practically brilliant. The period in the storage cellar is about six weeks. From the storage cellar the beer goes to the chip-cask cellar. There it is treated with a small quantity of fresh beer. In order to impregnate it with carbonic-acid gas it is generally bound under a pressure of 6½ to 7½ pounds, or about half an atmosphere. The carbonic-acid gas is absorbed in direct proportion to the pressure, and half an atmosphere has been found enough to saturate the beer with gas. When the fresh beer has completely fermented, and no further evidence of cloudiness appears, the beer is passed through a filter into the trade package and sent out for sale. The whole process occupies about 2½ or 3 months. This is the process used by 95 per cent of the brewers in the United States. (404, 405.)

2. *Exclusion of bacteria.*—Mr. BROWN, president of the Long Island Brewery, states that Professor Pasteur tried some years ago to make beer that should never spoil, by making it without letting it come in contact with the air. He built a brewery for this purpose. He made what he called a perfect beer, "but it was so perfect that no one would drink it." Mr. Brown says that the peculiar excellence of the beer made in certain places is due to the bacteria which the beer derives from the local air. The excellence of Munich beer is due to the local bacteria. Mr. Brown took the trouble a year ago to get pure yeast from the Bavarian Government. He has since used it exclusively in his brewery. But it has not changed the taste of the beer at all. Mr. LIPPE says that his brewery did the same thing, and with the same result. Both agree that it is the local bacteria, and not any peculiarity of the yeast, that gives the peculiar local flavor. (387.)

Mr. WYATT believes that some very exhaustive experiments have been made in the filtering of the air to which beer is exposed, or in the carrying on of fermentation in a vacuum, in order to exclude bacteria. He would regard such a process as desirable if it could be brought to such a point that relatively unskilled men could handle it. That is almost impossible. At the moment of putting in the bung a small space is exposed, and the germs get in and undo all that has been accomplished. (408.)

3. *Aging*.—Mr. WYATT, a brewer's chemist, says that there has been much popular prejudice against the sale of what is called immature beer. A mature beer can be nothing else than one which has been properly fermented, and which, consequently, will not rapidly undergo decomposition on change of temperature. The talk of immature beer refers to beer whose temperature has been rapidly reduced by means of an ice machine on removal from the fermenting room, and which has been cleared from impurities by means of filtration, instead of being allowed to cool and settle in the storage room for six weeks. The cooling and the settling are the only changes which take place after the beer has been fermented to the desired point in the fermenting room. The aging of beer adds nothing to its actual value for consumption. The statement that a perfectly mature beer increases its alcohol and decreases its malt extract by long storage is a mistaken statement. In the case of a wine or a stock ale, or any beer which could be kept at a high temperature, Mr. Wyatt would consider the possibility of the oxidation of the alcohol into ether, with a gain in flavor and acceptable qualities. But lager beer is stored in a cold atmosphere, which arrests chemical change. At the same time there are some wild yeasts which act at very low temperatures, and which sometimes get into beer and injure it. This affords an argument against the storing of beer for any considerable time. (405, 406.)

Mr. BAUER considers that beer ought not to be stored over 3 months, and that it is just as good after 6 weeks as after a longer time. The sooner the beer is sold the more malt extract and the less alcohol it contains. For export it is probably best that the beer ripen about three months. (392, 393.)

4. *Pasteurizing*.—Mr. WYATT regards the pasteurizing of bottled beer as the most scientific way of preserving it, but not as an economical way. If the bottles are filled too full they break, through the expansion of the liquid by heat.

It is desirable to keep the pasteurizing temperature as low as possible, say 140° F. Some germs resist that temperature, and some beer must consequently be heated to 150° or 155° in order to preserve it. In order to keep down the temperature and still make certain that the beer will keep, a little salicylic acid is put in. Many efforts have been made to pasteurize the beer in casks, but the beer has never been made satisfactory. It is easy to make it sterile, but it is made flat at the same time and acquires an unattractive odor and taste. (407, 408.)

Dr. WILEY says that the process of pasteurizing is meant to keep the beer only long enough for home consumption. The temperature is only 140°. The hand can easily be held in water at that heat. This heat is sufficient to kill the yeast ferments, but not to kill the lactic and butyric ferments. If these were destroyed the beer would be rendered flat and unpalatable. (359.)

Mr. BUSCH states that bottled beer for export is pasteurized by the Anheuser-Busch Brewing Association by being heated in a water bath, after it is bottled and wired, to a temperature of about 50° Réaumur. (489.)

Mr. BAUER, a brew master, says that he pasteurizes beer, but only for exportation. He bottles beer for the local trade without pasteurizing. In pasteurizing he brings the beer to a heat of 145° to 150°, and sometimes to 160°. (390.)

Mr. KRUESLER says that his bottled beer is pasteurized at a temperature of 140° to 160°. If it is to go to a very hot climate it is heated a second time after cooling. (377.)

Mr. WIGAN says that he pasteurizes beer by heating it to 140°, or 158°, or 160°, according to the variations of climate to which it is to be subjected. (376.)

5. *German and American beer*.—Mr. LIEBMANN says that on account of the different conditions of the atmosphere in Germany, anything which has to undergo fermentation will stand exposure there for a longer time than in this country. Beer brewed in Germany is longer in maturing and keeps its taste much better than beer brewed here. (394.)

Mr. BUSCH, president of the Anheuser-Busch Brewing Association, asserts that the best American brewers make a better beer than any in Europe, and that Europeans admit this, if Americans do not. One who has drunk American beer for 20 years is in better condition, if he drinks fine beers, than the German beer drinker of 5 years. But he must select what he drinks. There are good beers and bad beers both in Germany and in America. (491, 493.)

6. *Cloudiness of beer*.—Mr. ZELTNER, a lager-beer brewer, says that some excellent lager beer becomes turbid or cloudy at a low temperature, and becomes bright again when the temperature is raised. The reason seems to be that the albuminoids are congealed when the temperature is lowered and are dissolved again as it rises. Such a beer is likely to be rejected by ordinary people, because it does not appeal to the eye. But the albuminoids, the abundance of which cause the turbid appearance, are the most valuable nourishing constituents of the genuine malt beer. Such beer is far more wholesome to drink than that which is kept bright to the eye with antiseptics. The prejudice against it is

largely due to the unfortunate habit of drinking beer from glasses instead of mugs. (459.)

7. *Composition and gravity of beer.*—The managing director of Arthur Guinness, Son & Co., Limited, states in an affidavit that the original specific gravity of the stout brewed by that company for export before fermentation is from 1072 to 1074, and that the stout as it is sold in the market contains about 6.1 per cent by weight of absolute alcohol and 6 per cent of solid matter. (545, 546.)

Mr. HUPFEL says that the body of beer is estimated on a German scale known as *kaiser*. Some beer is brewed at 12 per cent *kaiser* and some at 10 per cent. Mr. Brown explains that 10 per cent *kaiser* means 10 per cent of malt extract. (379.)

8. *Ale and porter.*—Mr. EVANS, a brewer of ale and porter, says that ale is brewed with top fermentation and not in cold storage. Porter is brewed in the same way, but is brewed with roasted malt; that gives it the black appearance. (416.)

9. *Malt extract.*—Mr. EISNER says Hoff's malt extract is made of malt and bitter principles only. Other bitter principles as well as hops are used, but the process is a trade secret. The bitters are of vegetable origin and beneficial to health. No antiseptics or preservatives are used. The extract is pasteurized at 55° Réaumur.

Mr. Eisner says that the difference between malt extract, like Hoff's, and beer, is that the malt extract contains a minute quantity of alcohol and a large quantity of malt, while beer is the other way. He declares that every brewer is now selling beer as malt extract. (432, 433.)

C. *Foreign labels.*—1. *Genuine.*—Mr. SHAND, a representative of Arthur Guinness, Son & Co., Limited, states that some of the products of this company are shipped to New York in bulk for bottling purposes, though far the greater part is bottled in Dublin, Liverpool, and London. The Guinness stout is sold for bottling to only one concern in the United States. Labels are furnished by the company itself for exactly the quantity delivered to the bottler. The company insists that these labels be used. The stout is not sold for bottling except under an agreement that the company's own label shall be affixed to each bottle put up, and that the customer will not bottle any other black beer. (547.)

2. *Spurious.*—Mr. BROUN, a bottler of Bass's ale and Guinness's stout, says that he receives these goods from abroad in hogsheads of 62 gallons each, and bottles them in New York. He is subjected to great trouble and loss through forgeries and colorable imitations of his labels. He has had 35 to 40 such cases in the past 5 years. The goods so fraudulently sold are in most cases of American manufacture. The labels are perfect facsimiles of the originals; in some cases made from photographs. Some cases have been prosecuted and convictions have been obtained under State laws, followed by imprisonment. Some cases have also been prosecuted in the United States courts under the trade-mark laws. There has been no trouble in getting convictions, but there has been a good deal of trouble in getting evidence. Besides the counterfeiting of labels, Mr. Broun suffers from the refilling of genuine bottles. This is very difficult to prove. These fraudulent practices involve great loss to the Government as well as to the business of the witness. Foreign ale pays a duty of \$6 a barrel, while domestic ale pays an internal-revenue tax of only \$2 a barrel. (399, 400.)

Mr. ROCHE, who is associated with Mr. Broun in his bottling business, declares that he supposes their brand has been infringed a thousand times in the last 10 years, and a dozen convictions have been obtained. (414.)

D. *Foreign brewing regulations and standards.*—1. *Various countries.*—Mr. THOMANN presented a letter from the editor of the *Petit Journal du Brasseur*, of Brussels, relating to foreign brewing regulations. It is stated that the law of Belgium permits any legitimate materials to be used. Large quantities of wheat, rice, and maize, as well as barley malt, are used, and in some districts oats and rye have formed part of the grist from time immemorial. Sugars and glucoses are also in general use. The use of antiseptics is absolutely forbidden, except that sulphurous acid and its compounds may appear in quantities not exceeding 14 milligrams of the acid to the liter of beer. The sulphurous acid is legally supposed not to be added to the beer, but to be derived from the disinfecting of the cask. In fact it is introduced into the beer. Coal tar saccharin was formerly much used, but is now forbidden. Harmless bitters and tannin may be used as hop substitutes.

All legitimate materials may be used in France, and all cereals are used. Saccharin and salicylic acid are forbidden. Sulphites seem to be tolerated, and the writer believes that fluorides and creosotes are used to some extent. Tannin and harmless bitters may be used as hop substitutes, and the use of tannin is large. Such materials as ginger, cloves, and pepper are used, though the writer believes that only inferior sorts of beer contain any considerable amount of them. The

use of tannin is due to the dislike of the people for a bitter beer. The beers are very weak, varying from 1025 to 1045. The quantity of hops varies from 2 per cent to 3 per cent of the weight of the malt; but even the smaller quantity sometimes makes the beer too bitter. Tannin is then used in the hope that it will do for the beer what an excess of hops would do, without the disadvantage of the bitterness.

The writer believes that Bavaria is the only country in the world where barley malt, water, and hops must, by law, be the only ingredients of beer. No other State even in Germany has ever applied this regulation. (361, 362.)

Mr. BUSCH says that there is no uniform law in regard to beer in Germany. Some States forbid the use of raw grain. In Bavaria nothing can be used but hops, malt, water, and yeast. There is no standard or test of beer, even in Bavaria. A cheap beer can be made by using a common article of malt and hops and making it thin. The amount of beer to be made from a certain amount of malt is not limited by law. (489, 490.)

Mr. BAUER states that in his experience in Germany the Government compelled the use of a certain amount of malt to a barrel of beer. This regulation was made for fiscal reasons, because the tax was levied on the malt and not on the beer. The Government did not fix a standard of specific gravity. (390, 391.)

2. *German standard analysis.*—The following table was shown to several witnesses as being the German standard of composition for beer, as established by Professor Gustav Rupp and adopted by the German Government:

Chemical combinations of 100 cubic centimeters of standard beers.

	Specific gravity.	Water.	Carbonic acid.	Alcohol.	Extract.	Albumen.	Sugar.	Dextrin.	Glycerin.	Lactic acid.	Mineral substances.	Phosphoric acid.
Lager	1.0162	90.08	0.196	3.93	5.79	0.71	0.88	3.73	0.165	0.151	0.228	0.077
Export beer	1.0176	89.01	.209	4.40	6.38	.74	1.20	2.47	.154	.161	.247	.074
Bock beer	1.0213	87.87	.234	4.69	7.21	.73	1.81	3.97	.176	.165	.263	.089
Ale	1.0140	88.00	.200	5.00	6.40	.54	.96	1.70	.250	.260	.300	.160
Porter	1.0200	88.10	.190	4.90	9.60	.60	2.40	2.80	.240	.250	.340	.085
Condensed beer.	1.0657	55.80	.....	19.72	24.25	1.80	11.82	7.48	.....	.210	.350	.160

Composition of beer ash.

[Calculated for 100 cubic centimeters of beer.]

Potassium	38.67
Sodium	8.94
Calcium	2.78
Magnesium	6.24
Ferric oxide	.48
Phosphoric acid	81.35
Chlorides	2.98
Sulphuric acid	3.47
Fluoric acid	9.29

Mr. HUPFEL thinks that this represents about the average composition of beer, but he says that no two brewers will put out exactly the same product. (383.)

Professor CHITTENDEN thinks that the standard suggested is a reasonable one. The quantity of alcohol agrees substantially with his experience in the analysis of ordinary beers. He has not analyzed condensed beer or malt extract. (426.)

Mr. BROWN says that this standard appears to relate to a finished beer after fermentation. The composition of beer continually varies with its age. Beer which has just been brewed contains a larger percentage of sugar and malt extract and a less percentage of alcohol than beer which has stood longer. After the beer comes out of the fermenting vats a silent fermentation still goes on, and the proportion of sugar decreases and the proportion of alcohol increases. The suggested standard, showing a proportion of sugar in one case as low as 0.88 and a proportion of alcohol as great as 3.93, seems to refer to a beer which is old and thoroughly fermented out. (383.)

Mr. BAUER expresses the opinion that the analysis must have been of a very old beer; one which has been kept longer than beer is ever kept in this country. (391.)

Mr. WYATT says that it would be absurd to attempt to establish these standards definitely, but that they seem to represent in a general way perfectly fair averages of the beer now made in this country. Mr. Wyatt does not think that there is any fixed standard of beer in Germany; the Bavarian law prohibiting the use of anything but malt and hops was made for fiscal purposes. He denies that long storage of perfectly matured beer tends to increase the alcohol and decrease the malt extract. (406, 410.)

E. Proposed legislation.—1. National regulation favored by brewers.—Mr. FECKER, manager of the United States Brewing Company, thinks that national regulation of the manufacture of beer is desirable, in that it would diminish the prejudice which a majority of the people seem to feel against the brewing business. Mr. Fecker was one of the originators of a petition for such legislation. (298.)

Mr. PLAUTZ thinks that a national law for the inspection of beer would be a good thing for the brewery interest, because it would remove the prejudice that a great many people have against the use of beer. (301.)

Mr. OEHNKE is not opposed to government inspection of beer, and he believes that the Retail Bottlers' Association has petitioned Congress to look into this question, because so much has been said about adulterated beer. (293.)

Mr. PABST thinks that a national law for the regulation of brewing would be a very good thing. (311.)

2. Legal standard favored by brewers.—Mr. O'REILLY, editor of the Liquor Trades Gazette, believes that the brewers would be willing to have a national law fixing the standard for beer, rather than face the troubles that would result from State legislation. (462.)

Mr. ZELTNER, a lager-beer brewer, would have a legal standard fixed for beer, upon an all-malt basis. The public should know just what goes into the beer which it drinks. Beer should be regarded as inferior or adulterated in the proportion in which other cereals are substituted for barley malt. (456, 459.)

Mr. HUPFEL, a brewer, would not object to a regulation of the materials which may be used for beer, provided it were made by the United States Government. He would think it wrong that a single State should establish such a regulation. That would place the brewers of that State at an unjust disadvantage as compared with the brewers of other States. (380.)

Mr. HACHEMEISTER thinks that it would be an advantage to the honest brewers to have a uniform standard fixed by United States law. He does not think that it would be fair to establish a standard by State law, because that would give an advantage to competitors in other States. (416.)

Mr. LIPPE, president of a brewing company, thinks that all good brewers would welcome a law of Congress to prohibit the use of anything but grain and hops in beer. It is for fiscal reasons, however, that this regulation is enforced in Bavaria. The beer tax in Bavaria is not levied on the beer but on the malt. If such a law were to be established in the United States, the most important thing would be to frame it so that it could not be evaded. Mr. Lippe does not think that such a law is needed by reason of any large amount of adulteration of beer. No other article made and sold in the United States is so pure. Mr. Lippe would think it proper to prescribe a minimum amount of malt extract which all beer should contain. (381-384.)

Mr. Lippe thinks that the law should make it compulsory to brew beer from grain and hops only. He considers that the brewing industry has been injured by the exclusion of Canadian barley, which he regards as the best brewing material, by the tariff. (393.)

Mr. BROWN, president of the Long Island Brewery, believes that the brewers would welcome a standard of composition fixed by the United States Government; say a standard below which it should not go in original gravity. Such a standard would relieve them from the cry against bad or impure beer, from which they unjustly suffer. A State standard would be injurious, because beer not up to the standard might be brought in from other States to the injury of the local brewers. (388, 389.)

Mr. WYATT thinks that brewers should be permitted to make beer of any gravity which they please or which their customers require; but that it might be forbidden by law to sell any beer which did not contain 45 per cent of its original gravity in extract, or any beer or ale which did not contain 35 to 40 per cent. (409.)

3. Uniform standard opposed by brewers.—Mr. BUSCH, president of the Anheuser-Busch Brewing Association, indicates that, as a brewer of the finest beer, he would not approve a law which should undertake to prescribe a uniform quality

for beer. He would regard such a law as disadvantageous to the good brewer. If articles are put into beer which are injurious to health, a law should be passed to protect the public. Otherwise there is no need of legal interference. A mixture of corn and barley malt makes a standard beer, and the grade of beer ought to be measured according to the materials that are put into it. A minimum standard of beer would not work any hardship to the honest brewer, but the main thing is that the public should be informed of the articles that enter into the brews. (491-498.)

Mr. SCHWARTZ, a consulting brewer, thinks it impossible to fix a legal standard for beer, as to its gravity or the percentage of alcohol. He does not know that this is done in any country, and he asserts that the amount of beer which may be produced from a given amount of material is nowhere limited, although in some countries the beer tax is based on the amount of material consumed. (374.)

Mr. WACKENHUTH, a brew master, does not see how a national law could be framed which should control the standard of beer. Beer must be made both light and dark, both sweet and bitter, to suit various tastes. (413.)

4. *Variable standard proposed.*—Professor CHITTENDEN suggests that a standard of beer might be fixed, not absolutely, but with a reasonable provision for variation. A definite figure could not be established unless as a maximum or a minimum. (426.)

5. *Legal standard for malt extracts.*—Mr. EISNER would greatly approve of a national law fixing the standard of this product. He states that the German and Austrian governments do compel the percentage of malt extract to be marked. Beer could not be sold as malt extract without a certain percentage of extract or "kreuzen," namely, 20 per cent of malt extract. Very little beer is sold in this country which has 10 per cent. (432, 433.)

IX. WINE.

A. *Blending, artificial fabrication, and adulteration.*—Dr. WILEY distinguishes 3 kinds of blending: (1) In all wine countries wines from different vineyards, having different flavors due to local causes, are blended to make from year to year uniform wine. This the witness considers perfectly legitimate and even praiseworthy, because it secures a uniform standard and quality. (2) Beverages are also blended or compounded so as to produce a strictly artificial mixture. For instance, by mixing 10 or 12 per cent alcohol, 8 per cent of such materials as sugar and glycerin, a dash of tannin, a red coloring material, an artificial flavor made by a chemist, a drop or two of essential oil, and a little burnt sugar, one can make a claret, or a red mixture which has chemically the same materials found in genuine claret and which may taste like claret and looks like claret. Only the most careful chemical examination or a very expert or cultivated taste could distinguish the difference. This kind of blending the witness pronounces fraudulent; the compound is less palatable and less wholesome and may be positively injurious. We can imitate the chemical constituents, but never can imitate nature in making them palatable and wholesome. (3) The third form of blending, which is far more common than the others, is the process which is made to take the place of aging in distilled liquors. (53, 54.)

Three samples of wine examined by Dr. Wiley, all purporting to have been made at Paducah, Ky., and marked "sherry," "port," and "sweet catawba," were absolutely artificial, and contained no fermented grape juice at all. They were made of alcohol and commercial glucose, a little tannin, and aniline dyes. The coloring matter was in such large quantities that several tufts of wool were beautifully dyed with colors taken from one sample. These wines imitated in a general way the flavor, the aroma, and the taste of the genuine articles, and could be sold to persons not acquainted with the properties of wines without their fraudulent nature being discovered. (536.)

Mr. WYATT, a brewer's chemist, says that the chief adulterations which he has found in wines have been aniline dyes. He regards the use of coloring matter for wine as reprehensible, though not now so deleterious to the health as formerly, because the aniline dyes can now be prepared without the use of arsenic.

There is another common sophistication of wine, not properly an adulteration—the addition of alcohol. Wine which, by ordinary fermentation, would contain 7 or 7½ per cent of alcohol has enough alcohol added to bring up the percentage to 10 or 11. (410, 411.)

Mr. EMERSON, president of the Brotherhood Wine Company, thinks that there is very little adulteration or mixing of American wines. (507.)

Mr. HOCHSTADTER asserts that there is more adulteration of liquors in Europe than in America. "They send us wines that have never seen a grape, and which

they could not sell or use in their own country, and are prohibited from use there by law; but there is no prohibition against their exporting them to this country." (470.)

Mr. EITEL, an importer of wine from Spain, France, and Germany, says that the law of the wine-producing States of Germany is very strict, and the amount of sugar or other substances which may be added to wine is limited. It is permitted to make what is called artificial wine, but it must be labeled and sold under that name. A beverage called a second wine is also made by the addition of chemicals and sugar to the pressed grapes, but it must be sold for what it is. (291.)

Mr. ROSSATI, a wine expert, employed by the Italian Government to analyze Italian wines after their arrival in this country, exhibits the regulations of the Italian Government for the certification of wines. Importers of Italian wines may apply to the office maintained by the Italian Government in New York, and the official representative will take samples and apply a label showing that the wine is in the course of examination. The label is to be so applied as to prevent any change in the contents of the package. If the wine is found pure, clean, and healthy, a label testifying to these facts will be so applied that it must be destroyed in order to open the cask. If the wine is adulterated or defective, the Government representative will give a certificate stating the adulteration or defect, and this certificate may be made the basis of a claim for damages against the shipper. In the case of wines certified pure, "the technical operations that the importer may think necessary to permit upon the same in order to render them acceptable to the consumer, and for their better preservation, must be supervised by the Government representative, in order that nothing may be done to injure their character and healthfulness." (445.)

Mr. Rossati declares that he has never found any sample of Italian wines adulterated, though he may occasionally have found wine a little out of condition. The Italian laws are very strict and punish the adulteration of wines, not only with fines but with imprisonment. Moreover, wine is so cheap in Italy that there is no incentive to adulteration. (446.)

Mr. ZUCCA, president of the Italian Chamber of Commerce of New York, says that there have been some adulterations in this country of wines brought from Italy, but that they have been upon a small scale; hardly large enough to do any great harm. (485.)

B. Champagne.—1. *Definition, and process of manufacture.*—A letter was presented from the proprietors of Bonfort's Wine and Spirit Circular, in which it is stated that the word "champagne" is properly used only to designate wines grown in the old province of Champagne, in France, and that the French courts prohibit the manufacturers of sparkling wines in any other province from calling their product champagne. The letter declares that neither in Germany, Italy, or in any other wine-producing country, nor in France, outside the province of Champagne, have people any right to call their product "champagne," nor do they do so, save as a means of deceiving the unwary purchaser. (571.)

Mr. RIPPEN, a maker of carbonated champagne, says that the word "champagne" originally designated only wine from the old province of Champagne, in France, whether effervescent or still; and for more than 50 years no such wine has been marketed in this country. General usage has given the name champagne to all effervescent wines, regardless of the place of origin or the manner of preparation. This definition is unanimously accepted by the trade and the public, and is acknowledged in every modern dictionary and encyclopedia. Mr. Rippen asserts that the Standard Dictionary and the last edition of the Encyclopedia Britannica sanction this usage. Mr. Rippen declares that neither he, as a maker of artificially carbonated wines, nor those who manufacture what is called champagne fermented in the bottle, make champagne, in the original sense of the word. "Even the stuff that comes over here from abroad is not champagne any more." (569, 571, 578.)

Mr. EMERSON, president of the Brotherhood Wine Company, defines champagne as a sparkling wine, made by the French process of fermentation in the bottle, which requires from 3 to 4 years to complete. He describes the process of production in the following terms: "The process is in the first place to have your grapes absolutely clean, well picked over, and the proper variety of grapes to produce the flavor that you wish in the champagne. Then it is crushed and the juice is put in barrels or casks and allowed to ferment. In the spring this wine is taken and put into a large tank—what we call a bottling tank—holding from 2,000 to 4,000 gallons. It is then bottled, after the addition of some older wine. Champagne always contains more or less old wine. The perfection of the champagne comes in in the perfection of the wine and in the careful and judicious selection of the grapes to make the original blend before they are pressed, and

also in the care and skill that is taken in regard to developing the wine in regard to temperature. Then it is bottled and allowed to remain in a moderately warm place until fermentation commences in the bottle. As the fermentation proceeds the bottles break more or less, and that is the only way that we can tell how the fermentation is proceeding. After it gets to a certain point and the bottles are breaking too fast we move that champagne into a colder apartment, so as not to entirely chill the fermentation, but so as to lessen it and lessen the pressure slightly on the bottle. It is gradually moved from one apartment into another until at the end of perhaps 3, 4, or 6 months it arrives at the coldest cellar that we have, which we call our storage cellar. There it lies in tierage, lying on the side, to keep this gas from escaping and also to economize space. It lies there from 3 to 4 years in properly made champagne. Then it is taken and put on tables which have holes made through them—plank tables, set in the form of an A, with holes intended to hold the bottles. When it is first put in it is quite flat and a sediment is formed from the fermentation which falls directly to the bottom of the bottle in a little streak. It is shaken every day by a dexterous twist of the wrist and gradually raised up until in the course of some weeks—sometimes 2 weeks, but sometimes 3 months, according to the obduracy of the sediment to leave the bottle—it arrives at a vertical position. When the sediment is directly on top of the cork, then we take the champagne from there and take it up to the finishing room, carefully keeping the bottle with the cork down, so as not to disturb the sediment. In the finishing room it is disgorged; that is, the cork is dexterously taken—withdrawn—allowing the sediment and a small portion of wine to be removed. The escaping gas is allowed to blow out with the sediment. Then it is put on a finishing table and a small dosage is added to it to slightly sweeten it and render it a little more palatable. That addition is called dosage."

The dosage consists of rock candy and old wine; a very small percentage is used. Some of the carbonic-acid gas escapes in the removal of the sediment, but the bottles originally contain more gas than is needed. (501, 502.)

Mr. HILDRETH, president of the Urbana Wine Company, gives substantially the same account of the method of manufacturing champagne, and he adds that the only difference between the French and the American champagnes is that the French wine has little or no flavor of its own, and the French makers add liqueurs or cordials, while American makers depend entirely upon the flavor of the grape. He also says that wine should be kept from 3 to 6 months after the dosage is added, to allow the sirup to blend with the wine. According to Mr. Hildreth almost any grape will make champagne, though some grapes produce gas in the fermentation better than others, not to speak of the different flavors which different kinds of grape will give. He declares that the wine made by his company and by other manufacturers of American champagne is as fine as any in the world. That is the judgment of competent experts when they can be induced to try the American goods without prejudice. (509-512.)

Dr. McMURTRIE states that he has seen the process of the manufacture of champagne as carried on in the neighborhood of Epernay, in France, by one who has inherited the manufacture from his ancestors. The clean juice of the grape, after fermenting for a time in an upper cellar, is transferred to a lower cellar, probably 50 or 60 feet under ground, where the temperature is uniform at about 55°. Here the fermentation is nearly stopped by the coolness, though a slow fermentation peculiar to this kind of wine goes on for some time. After the wine becomes clear it is put into bottles and slow fermentation is allowed to continue in the bottle. By dexterous manipulation all sediment is brought to the stopper and blown out. Sometimes some of the finest sugar, if it is needed, is added, and the bottle is again stoppered. It is generally believed that in this process of fermentation certain peculiar ethers are formed which give the wine its bouquet, and which also undergo decomposition, with a continuous liberation of carbonic-acid gas, after the wine is opened. It is the presence of these ethers which is believed to cause the prolonged effervescence of wine produced in this manner. Wine which is fermented by the ordinary method of producing a still wine, and is afterwards charged with carbonic-acid gas, will continue to give off gas for a considerable time, provided it is kept cool; but if the wine is warmed, say to 55°, the gas is liberated rapidly and the wine quickly becomes flat. (602, 603.)

Mr. EMERSON asserts that there is practically no difference between French and American champagne, if only true champagnes produced by fermentation in the bottle are considered. American makers are using the French methods, based on the experience that it has taken the French makers 200 years to acquire. The word "champagne" originally designated the place of origin; but the champagne makers gradually came to get their materials outside of their own district, and the word now designates a wine made by a particular process, no matter in what

place. German champagne and French champagne are distinguished in the trade, as well as American champagne. Mr. Emerson does not know that there is any sophistication or adulteration of champagnes aside from the selling of still wines artificially carbonated under the name of champagne. The true champagne, according to Mr. Emerson, could hardly be adulterated. If it contained any impurities it would not respond to the process of manufacture. It would not sparkle. (501, 505, 506.)

Mr. COOK, president of the American Wine Company, says that what is called dry champagne differs from sweet champagne only in having less sirup added to it. No preservatives are used in the manufacture of genuine champagne. (518, 519.)

2. *Artificial carbonation.*—Mr. EMERSON, president of the Brotherhood Wine Company, says that there is a wine which is called champagne, but which is made by taking still wine and forcing into it carbonic acid, which is made from sulphuric acid and marble dust. The process is the same as that of charging mineral water or soda water. It is a far cheaper process than that of making true champagne, and the presence of these spurious goods in the market interferes greatly with the sale of real American champagnes, not only by competition, but even more by the prejudice which they create against all American champagnes. The amount of this spurious champagne is very large. Imported wine of the same character is understood to be sold in a limited way, but the present high tariff keeps it out for the most part. (503, 507.)

Mr. HILDRETH, president of the Urbana Wine Company, Mr. BAUDER, manager of the Pleasant Valley Wine Company, Mr. COOK, president of the American Wine Company, and Mr. WHEELER, a producer of champagne, make similar statements. Mr. Wheeler says that the makers of the spurious champagne can buy the still wine, carbonate it and ship it in a day or two, and turn their money over every 3 months. In the manufacture of the genuine article capital is necessarily invested from 3 to 5 years. Mr. Wheeler says that a great deal more of the carbonated wine than of the true champagne is produced in this country, and that the sale of it is growing. Mr. Hildreth confirms the statement that very little artificially carbonated wine is now imported, on account of the high duty. The prejudice against all American champagne which results from the sale of the spurious product is chiefly complained of. (508-524.)

Mr. BAUDER believes from some small experience of his own that artificially carbonated wine is unwholesome. He considers, however, that people have a right to manufacture such a product, provided they sell it for what it is. The great trouble is that the sale of such wines under the name of champagne leads many people to suppose that all champagnes made in the United States are made by the artificial process. This interferes greatly with the sale of genuine goods. (514, 515.)

Mr. WHEELER says that for the artificially carbonated wines which are sold under the names of champagne any light-colored wine can be used. It is sweetened to the degree desired, put into a cylinder and charged with carbonic-acid gas under a pressure of 70 or 80 pounds per square inch, then bottled and corked. (521.)

Dr. WILEY says that his analysis shows that an artificial champagne can be easily detected by chemical means, as well as by taste and odor. (590.)

Mr. EMERSON says that a glass of still wine artificially carbonated to resemble champagne will sparkle for a few minutes and is then dead, while a glass of genuine champagne will bubble for 2 hours. (504.)

Mr. COOK asserts that artificially carbonated wine, such as is sold for champagne, can be produced for one-fourth of the cost of the genuine article. (519.)

Mr. RIPEN, a maker of carbonated champagne, says that he buys his wine from a certain district in California. It is guaranteed to him to be pure, containing no added ingredients. He receives it when it is not less than 3 years old, and keeps it in storage, undergoing a process of clarification and preparation, for not less than 6 months. No deleterious substance, no preservatives, no chemicals of any kind are added. It is necessary to have an absolutely pure article, because you will otherwise have a precipitation in the bottle. The foreign ingredients will combine and produce a precipitate, and the wine will become dark and thick. The wine is carbonated with carbonic-acid gas which is as pure as it can possibly be; it is bought under a guarantee that it is 99½ per cent pure. The wine stands about a month after carbonating before being put on the market. It will effervesce longer than any natural wine made in this country, and about as long as the better grades of imported champagnes. (569, 570, 579.)

Mr. Ripen does not believe that carbonic-acid gas is now made from sulphuric acid or marble dust. That which he uses comes from natural springs and is clarified. He believes that the carbonated wine, instead of costing only one-

fourth as much as that fermented in the bottle, costs probably 85 per cent as much. He does not believe that there ever was a champagne fermented in the bottle in this country which took 4 years, or, indeed, more than 2 years. "People who have been working for those men, at the head of their cellars, have informed me that it took on an average a year and a half." Mr. Ripen thinks that about one-third of the champagne made in the United States is fermented in the bottle and two-thirds is carbonated. (572, 573.)

Mr. Ripen asserts that his artificially carbonated champagne is more wholesome than champagne fermented in the bottle. The wine is clean and pure when he buys it, and it is already aged. Champagne which is fermented in the bottle is made from new wine, and Mr. Ripen believes that the carbonic-acid gas which is formed by the fermentation contains from 5 to 10 per cent of impurities, consisting of ethers and injurious gases. He asserts that "chemists and physicians indorse champagne made by the modern process and declare it far purer than that made in the old and crude way." The man who drinks the natural champagne at night will arise in the morning with a "big head" on him; if he drinks the carbonated champagne he will get up in the morning all right. (569, 570, 579.)

Mr. MINOR, a maker and importer of carbonic-acid gas, states that the gas for carbonating champagne is not obtained by manufacture, but by collection. There is only one place in this country where natural carbonic-acid gas appears in such quantities as to make its collection and sale a commercial possibility. That is at Saratoga. The gas which Mr. Minor sells to Mr. Ripen and other producers of carbonated champagne comes from Germany, from the district in which the Apollinaris and other famous German springs are situated. In that district water accompanied by carbonic-acid gas rises from a very great depth—a depth so great that there is no danger of mixture with surface gases arising from the decomposition of organic material. The water is subjected to very great pressure in the earth, and is heavily charged by nature with the gas. As it reaches the surface the excess of gas escapes, and is carefully dried and collected in a gasometer. This gas is as nearly chemically pure as it can be made. Mr. Minor declares that he does not know of any article made on so large a scale in which so high a degree of purity is reached as is shown by the analysis of this gas. It is shipped to the United States in steel cylinders, under a pressure of a thousand pounds to the square inch.

Mr. Minor is also familiar with the manufacture of carbonic-acid gas. He does not sell the manufactured gas to the wine people, but to bottlers of soda water, etc. Even in the manufacture of gas sulphuric acid is not commonly used. There are not over 2 firms in the United States out of 12 with whose processes he is familiar who use it. If a trace of the sulphuric acid were permitted to get into the gas it would work great injury by gradually destroying the steel cylinder in which the gas is compressed. (573-576.)

Mr. Minor asserts that artificially carbonated wine is much more wholesome than champagne fermented in the bottle. If fermentation is carried to such a point that all the sugar is decomposed, it is found that the alcohol and carbonic-acid gas produced do not represent the amount of sugar which was originally present. There appears a loss of about 5 per cent. It has not yet been determined to a certainty what becomes of this 5 per cent of sugar. It is known, however, that secondary-decomposition products are formed, among which are traces of glycerin and succinic acid. If champagne is fermented in the bottle the secondary-decomposition products have no opportunity to escape. The physiological effect of champagne in excess is out of proportion to the amount of alcohol contained in the wine. The effects are more decided and more unwholesome than those produced by too much consumption of artificially carbonated champagne. The only difference that we know of between the two is that the products of secondary decomposition have been retained in the naturally fermented champagne. (574, 575.)

Mr. WERNER, a maker of artificially carbonated wine, says that his wine comes from Sonoma County, Cal. He receives it when it is 3 or 4 years old. He keeps it in cellars from 6 months to a year, that the sediment may be entirely precipitated. Then it is filtered so that it is absolutely pure. It is then carbonated with carbonic-acid gas from Oberlahnstein, Germany, the same gas with which Apollinaris water is carbonated. It is the natural gas which comes from the ground with the water. (576, 577.)

3. Comparative tests.—Dr. WILEY made an examination of 9 champagnes bought in the market. One was an artificially carbonated wine; the others were champagne fermented in the bottle, partly of European and partly of American production. All were kept at a temperature of 62° for 5 hours in order to determine the rate of effervescence. In all the effervescence continued during this time, and there was very little difference between the different samples; the

bubbles from the artificially carbonated wine were larger in size and less evenly distributed than from the others. After standing over night the artificially carbonated sample had a bad odor, and the others were pleasant to the smell. The American wines had a richer and nuttier flavor than the foreign. On chemical examination it was found that the natural American champagne corresponded very nearly in composition to the standard European varieties. The artificial champagne contained much less alcohol than the natural champagne, and a considerable quantity of cane sugar had been added to it. (589, 590.)

Mr. HARRISON, sergeant-at-arms of the Senatorial Committee on Pure Foods, reports the result of a comparative examination of certain champagnes, 5 of which were imported, 5 American wines fermented in the bottle, and 4 American carbonated wines. All were first placed for 2½ hours in a refrigerator in which the air had a temperature of 35°. All were then placed on a steam radiator, where the thermometer at the close of the test registered 98°. Under these circumstances the average period of effervescence of the carbonated wines was 6 minutes 45 seconds; of the French champagnes, 43 minutes 24 seconds; of the American natural champagne, 47 minutes 48 seconds. (591, 592.)

C. Labels.—1. *Still wine*.—Mr. EMERSON, president of the Brotherhood Wine Company, says that a very large proportion of American still wine is sold under foreign labels, with the clear intent to deceive the public. The best of the American wines are now sold as foreign wines in our market. (507.)

Mr. EITEL, an importer of wine and beer, declares that the small wholesale houses sell wine under false labels. The retailer can not put an adulterant into bottled goods, though he could into casks. (290, 291.)

Dr. WILEY says that one of his assistants visited the custom-houses and the large importers to obtain samples of beverages imported into this country from Germany. The importers were visited incognito. At one place where the assistant applied for claret, the seller asked what label he should put on it. The marking of wines with false brands is very much in vogue, and extremely reprehensible. California producers have adopted foreign names in some cases, so that Liebfraumilch, Johannisberger, and Rudesheimer can be bought in the Sonoma Valley. The labels are not foreign, and the names of the vineyards are given, but the wines are named after well-known foreign varieties. It seems to Dr. Wiley that the word "California" or some other distinguishing name should be used. Sherry, port, and Moselle wines are also made in California and called by these names, to which there would be no objection if their California origin were also stated. The witness has never gone to a dealer in this country who would not tell him exactly where his wines were made and put up if asked, but people do not take that trouble. It is easy to have bottles sprinkled with coal dust to give them the appearance of having been in the cellar for years, and the witness has seen fresh-looking dust, as though put on for the occasion. (40, 41.)

Mr. HILDRETH, president of the Urbana Wine Company, says that his company makes brands of wine for two or three different people, but they are labeled for those customers and labeled as American wines. No deception is involved. The company does not now take new customers of this kind, because it wishes to establish its own brand and label. It does not make any foreign label or imitate any foreign or domestic wine. (510.)

2. *Champagne*.—Mr. WHEELER says that he has never seen a bottle of the so-called champagne which is produced by artificial carbonation, marked in a way which would indicate the method of manufacture. It is labeled champagne, and the consumer buys it for a true champagne and pays the highest price. The jobber and the grocer may understand what it really is, but the grocer does not tell the consumer. The retailer is largely to blame for the fraud. "He will sell it for \$11 or \$12 or \$13 a case until the consumer gets on to it, and then the seller or retailer will sell the same wine for \$6 or \$7, or even \$5 a case." But these so-called champagnes hardly ever bear a label which tells where they were made. They are generally marked to look as if they came from France or Italy. Mr. Wheeler knows of only two makers who put their names on goods of this kind. A connoisseur can detect the character of these artificially prepared wines by the taste, but most people who drink wines are not connoisseurs. The makers of true American champagne label their goods with their own names and with the place of production. Their goods are marked champagne and are champagne. (521, 523.)

Mr. WERNER, a maker of carbonated champagne, says that his firm uses no foreign labels, but puts its own name on its bottles. (577.)

Mr. RIPPEN, a manufacturer of carbonated champagne, says that his firm puts its own name—Rippen & Co.—on its bottles. He believes that some makers of carbonated wine put it up under fictitious labels. A great deal of champagne sold in this country is carbonated in Europe and labeled as if fermented in the bottle. The witness believes the majority of imported champagne to be the nat-

usually fermented wine, but some of it is carbonated and falsely labeled with such names as Mumm and Krug. A majority of the American champagne makers use labels which contain French words, apparently to give the impression that they are foreign. (572, 573, 577.)

D. Legislation.—1. State.—Mr. BAUDER says that New York has a law which expressly forbids artificial treatment of wine with carbonic-acid gas. The law has not been enforced. It is defective in not making it the duty of any officer to enforce it. But when he and others interested in the manufacture of genuine champagne considered the matter of attempting to enforce the law they concluded that it was not worth while, as it would only drive the fraudulent manufacturers into New Jersey. Wine shipped from other States could not be effectively dealt with by the law, as analysis would not show such a sophistication as artificial treatment with carbonic acid gas. (516.)

Mr. Bauder says that Ohio has a very stringent pure-food law, and that when it was first enacted his company was obliged to stamp the word "compounded" on the labels of its champagne, for shipment into Ohio, because, like all champagne, it contains a little rock candy. He almost made up his mind to refuse all orders from Ohio rather than put that word upon the label. But the rigid enforcement of the law seems to have been abandoned. (517, 518.)

Mr. EMERSON says that a State law is of no effect outside of the territory of the State, and does not restrict the shipping into the State of almost any kind of goods. It would be very difficult to prove that wines shipped in from another State had been fraudulently labeled. No analysis would show it. It would be necessary to get at the derivation of the wine. (508.)

2. National, proposed.—Mr. HILDRETH says the trouble with such local laws as that of New York governing the purity of wines is that they can not be enforced. The New York pure-food law is very poorly enforced. There ought to be a general law compelling people to sell their products for what they actually are. (514.)

Mr. EMERSON thinks that there ought to be a national law to compel people to show by their labels what is in their bottles. Every bottle ought also to be labeled with its true place of origin. If American wine makers put their own names upon their labels instead of foreign names, such adulteration as may now take place would be diminished, though adulteration is not now a serious trouble. (507.)

Dr. WILEY says that imported wine should come with a certificate from the Government where it is made. If genuine, there should be no objection to the process of manufacture being known. (54.)

3. Use of generic names defended.—Mr. HOCHSTADTER says that every manufacturer should be compelled to put his own name on the liquor that he puts up, and there should be a heavy penalty for the use of any other name; but when a name has become generic, so that it designates a kind of goods, the "foreigner has a right to those names only until the American has become acquainted with the process of manufacture."

Mr. Hochstadter submitted to the committee a brief by Mr. Israel F. Fischer, which had been presented before the commission to revise the patent and trademark laws, in protest against the adoption of any statute which should deprive American manufacturers of the right to describe their products by such words as "Port," "Madeira," "Burgundy," etc. Mr. Fischer asserts that such names of wines and liquors have come to be descriptive names of products, which may properly be applied to such products wherever they originate. They should be treated in the same way as the names of Brussels and Axminster carpets, Russia and Morocco leather, Cashmere and Tweed cloths, French mustard and confections, Dresden china, Dutch metal, and German silver. All these names originally indicated origin, but they have ceased to indicate origin and have come to denote certain kinds of goods. The American wine growers have secured the Malaga, Muscatel, Tokay, and other varieties of grapes, have planted them here, and have succeeded in producing the very finest qualities of wine and brandy. Buyers of champagne know that the word designates simply a sparkling wine; buyers of port, that it means a dark, rich, heavy wine, made by the same process which is used in Portugal. No deception is involved. No other means are open to the American producer of designating to consumers the character of his goods. The purchaser would not know what to ask for if he could not use the familiar title. The American producer claims that his wines are as good as the foreign, and in many cases better. (469-472.)

4. Carbonated champagne.—Mr. COOK thinks that a law which should compel makers of artificially carbonated wines to state the true character of their products upon their labels, instead of marking them "champagne," would be beneficial to the public, as well as to the makers of genuine sparkling wine. (520.)

Mr. HILDRETH desires a law to compel the labeling of every wine with its actual character. His business is particularly interfered with by the sale of artificially

carbonated wine under the name of champagne. Anybody who wants that kind of wine ought to have it, but it ought to be labeled, so that buyers may know what they are getting. (512.)

Mr. EMERSON desires that producers of carbonated wines be compelled to state on their labels what the bottles contain—whether carbonated champagne or genuine champagne; although, he adds, there is no carbonated champagne really. (508.)

Mr. WHEELER says the makers of true American champagne have no desire to prohibit the making of artificially carbonated wines, but they do want a law which will compel the selling of those wines under their true names and the labeling of them in a way which will indicate their true character. (522.)

Mr. RIPEN would not like to mark his bottles "Carbonated wine," or anything of that sort, lest people should "think it was some medicated stuff." If the carbonated goods were compelled to be marked in this way, and the users of the old process had to mark their wines "Fermented in the bottle," the effect would probably be to injure both kinds of American champagne, and to turn the trade toward the foreign brands. (578.)

Mr. WERNER would object to being compelled by law to mark his wine "Artificially carbonated," because the use of the word "artificial" would lead people to think it an artificial article. "Carbonated wine" would be sufficient. (579.)

X. DISTILLED LIQUORS.

A. Ingredients, distillation, and aging.—Dr. WILEY says the natural way of making whisky is by fermentation of grain, rye and indian corn being the two great sources of our whiskies. After fermentation is completed the mass is subjected to distillation. The product consists of water, common or ethyl alcohol, a series of alcohols known as fusel oil, and, finally, essential oils and ethers. Fusel oil is a term applied to a mixture of alcohols which have a higher boiling point and a more oily consistency than common alcohol. It contains amyl alcohol, butyl alcohol, and various other alcohols. All these distillations contain essential oils, which give the flavor and odor. Crude alcohols distilled in this way are not suitable for drinking. The product is raw whisky, colorless and unpleasant to the taste; hence to make a beverage of it it must be treated so as to improve the taste, and this is called aging. It is put into casks of oak, usually slightly burnt or charred inside. The raw whisky extracts from the wood a little tannin and coloring matter. It is then placed under the influence of oxygen, and the alcohols, under the influence of ferments, begin to oxidize, forming ethers. Alcohol of any kind when oxidized produces an ether. Ethyl alcohol forms sulphuric ether, which produces anesthesia; amyl alcohol forms a different ether, butyl alcohol still another. These ethers are all volatile, producing a pleasant aroma. By oxidation they remove the bad taste and poisonous alcohols from the mixture, so that after several years, instead of an irritating mixture, bad to the taste and smell, there is one which has a delightful odor and taste and is soothing—a whisky fit to drink. (54, 55.)

Dr. Wiley says brandy is obtained by distilling wine or fermented grape juice. The pomace left after the expression of the juice has a quantity of grape sugar and the tannic and other qualities peculiar to the grape. When mixed with water and fermented it forms a low-grade wine, which is subjected to distillation, brandy being the product. Genuine brandy has to be aged as whisky is to get the proper flavor and aroma from the alcohols. (56.)

B. Artificial aging of whisky and brandy.—Dr. WILEY says the manufacture of compound or artificial whisky has for its purpose the avoiding of the long and expensive process of aging. The makers begin with a pure spirits made in a few hours by rectifying the high wines of the distillery, the object being to get rid of all the other alcohols and leave only the pure ethyl alcohol. Cologne spirits is one of the trade names for the finest variety of this product. The blending begins with this high-grade alcohol—about 96 per cent alcohol and 4 per cent water. Enough water is added to dilute it to the strength of whisky—about 45 per cent; thus the volume is doubled or more at the start. The next step is to color it brown or reddish. This is done by adding burnt sugar or caramel. The flavorings due to the oxidation of various alcohols are easily made in the chemical laboratory, by oxidizing amyl alcohol and butyl alcohol. (See House Report No. 2601, Fifty-second Congress, second session, pp. 67-74.) Thus in two or three hours a skillful compounder can make a material which looks like, smells like, tastes like, and analyzes like genuine whisky, but has a different effect upon the system. It is more apt to injure the user than the genuine article. The witness can not say that any of the materials used are unwholesome in moderate quantities, being chemically the same as those produced by the natural method

of aging, but there is something lacking. The substitution of artificial for natural products impairs the quality, and there is a difference in effect which the chemical laboratory fails to distinguish. The injury to health produced by a little excess in the use of alcoholic liquors is very much accentuated when these artificial drinks are employed. The witness would class this practice under both forms of adulteration—as a fraud, and also as injurious to health, without being able to point out any particular thing that causes the injury. (55, 56.)

Dr. Wiley says there is no way to tell with ease or definitely which samples of whisky are genuine and which are not. It is a rare thing that nothing but pure articles are placed on the market. He has been told that whiskies are generally about two-thirds genuine and one-third mixed. The chemist is therefore at a loss. (54.)

Dr. Wiley has been told by a well-informed gentleman that considerably more than half of the whisky in this country is compounded whisky. A little old whisky is usually mixed with it, but it is often sold as it is—whisky that has no claim to be called whisky and brandy which has never been in contact with the grape. Compounded brandy is made exactly as compounded whisky is. The essence dealer will sell brandy essence or whisky essence; the fraud is the same in both cases. This compounding is not peculiar to this country. Compounded brandy is made in Europe, and the total quantity produced is far in excess of the quantity derived from fermented and distilled grape juice. There is nothing to prevent the importation of these brandies into this country.

Dr. Wiley says nothing against the business of chemical manufacture of whisky and brandy essences and ethers, but considers it a legitimate business. Some perfectly honest, upright gentlemen are engaged in the business, and they do not want these things to get out of their hands to be used for fraudulent purposes. These same manufacturers make the flavoring extracts for soda water. (56, 57.)

Professor CHITTENDEN doubts whether chemical analysis alone will always detect a "made" whisky. He thinks it questionable whether an artificial whisky made by essences is as wholesome as a natural whisky made by aging, but he can not answer definitely, because he has no direct knowledge of the effect of some of these essences on the body. (424.)

Mr. O'REILLY, editor of the *Liquor Trades Gazette*, complains of the selling of new whiskies as fully matured. He does not think any substance deleterious to health is used in the artificial aging of whisky, except possibly for coloring, to imitate the dark color produced by natural aging. For that purpose prune juice is often used; this is not believed to be injurious to health. But even if no injurious substances are used, the selling of new whisky for old is not fair to the honest manufacturer. (461.)

C. *Adulteration, blending, and fabrication of whisky.*—1. *Water and tannin.*—Professor CHITTENDEN states that in all the various liquors which he has analyzed in the last five years he has found no well-defined adulteration except the addition of water to whisky. This adulteration seems to be common in some of the lowest grades of saloons. He also found tannin in some of the whiskies which contained a large proportion of water, but whether that was the result of adulteration or of the presence of the product for a long time in bad casks he could not tell. (423.)

2. *Bottling whisky in bond—alleged failure of law.*—Mr. O'REILLY says that there is a United States law under which liquors are bottled in bond, and goods "bottled under that law bear a Government stamp and are 100 proof, absolutely without any adulteration." Mr. O'Reilly thinks that this law is a failure. Very little such liquor is sold at New York, because the people there "do not fancy liquor that is under proof; they prefer something that is about 85 or 90, and in this market there is a preference for blended whisky, consisting of the product of several distilleries blended together." (462.)

3. *Liquors without distillation.*—Mr. O'REILLY submitted a book called "A Treatise on How to Make Liquors without Distillation." Formulas for the manufacture of Scotch whisky from rectified spirits and for the production of a head upon liquor by the addition of sweet oil and sulphuric acid were read from it. (463.)

D. *False labels.*—Mr. SADLER, editor of *Bonfort's Wine and Spirit Circular*, believes that of all the leading brands of imported spirits as they are sold in this country more are spurious than are genuine. The falsification has been greater than ever since the rate of duty has been made very high. The fraudulent spirits are very largely the product of illicit stills, from which the Government derives no revenue whatever. The spirits are put up under counterfeit labels, either facsimiles or such imitations as will deceive the unwary buyer. Sometimes genuine imported bottles are refilled. This is extensively done in saloons where wines and spirits are sold by the drink. In fact, there are comparatively few places

which do not do it. While imported goods, such as Scotch whiskies, brandies, and wines, which have an established reputation, are the greatest sufferers, the practice is not confined to imported goods.

Mr. Sadler believes that, on the assumption that no tax is paid on the spirits thus fraudulently sold under the names of imported brands, the Government lost \$6,000,000 a year, which it would receive if the liquors which are sold as imported were actually imported and paid the duty. It is true that a great deal of spirits is sold in this way on which internal-revenue taxes have been paid; in that case the Government loses the difference between the internal-revenue tax and the import duty. (396-398.)

Mr. HOCHSTADTER declares that the statement of Mr. Sadler that \$6,000,000 annually is lost to the Government by reason of the imitation of labels by liquor dealers in this country can not be substantiated. (467.)

Mr. CRILLY declares that it is generally believed that Mr. Sadler's estimate of a loss of \$6,000,000 per annum to the Government by the refilling of imported bottles and the imitation of foreign labels is an underestimate. (473.)

Mr. O'REILLY presented 88 samples of fraudulent labels, all made in imitation of the labels of one brand of whisky. The proprietors of this brand have been particularly active in prosecuting such frauds. Aside from legal measures, they have resorted to methods of publicity. When they have found a man in a certain town imitating their whisky they have posted large placards informing the public of the fraud. (465.)

E. Proposed label laws.—Dr. WILEY would not favor the prohibition of the manufacture of compounded brandies and whiskies, but would favor a bill requiring them to be plainly marked and stamped by the Government when it stamps the alcohol content. He has been told by a well-informed man that these compounded whiskies do not usually go into the bonded warehouses, but are made and sold directly to the trade. When they are stamped in the first instance with a Government stamp the Government officials could easily see that they are stamped what they really are. Dr. Wiley says that some perfectly honest gentlemen engaged in the manufacture of whisky and brandy essences are as much in favor of the proposed law as he is. They do not want these things to get out of their hands, to be used for fraudulent purposes. They do not like to be participes criminis; they are anxious that their products should continue under their own names until they reach the consumer. (57.)

Mr. SADLER would have Congress enact that any person who sells, or keeps on hand for sale, foreign or domestic wines or liquors under any name other than the proper name or brand known to the trade shall be subject to fine and imprisonment. (397.)

Mr. O'REILLY, editor of the *Liquor Trades Gazette*, suggests that in the case of whisky a man need not stamp his entire formula upon the package, as that might involve the revelation of proper trade secrets, but that a reasonable percentage of its ingredients should be named upon the label of every package. (461, 462.)

F. Cordials.—1. *Processes of manufacture.*—Mr. RHEINSTROM, a distiller of cordials or liqueurs, states that his goods are produced by distillation from herbs, fruits, and cognac spirits, which is a refined or redistilled alcohol, supposed to be free from fusel. His products are self-preservative. Some of his competitors produce goods of similar appearance, without distillation, by the cold process, by the addition of essences. Such goods have to be preserved with antiseptics. (427.)

2. *Spurious foreign brands.*—Mr. O'REILLY testifies that he knows of only one American house which puts up liqueurs and cordials under its own name. A large quantity of these goods is manufactured in the country, but all except the products of this one establishment are put up under foreign names. This is a fraud upon the consumer and it lessens the Government revenue by diminishing imports. (464.)

3. *Proposed legislation.*—Mr. RHEINSTROM considers that the practice of selling goods as distilled which are not distilled, selling goods as made from herbs and fruits which are not made so, selling as pure goods those which contain unwholesome antiseptics, should be stopped by law. (427.)

G. Alcohol in general.—1. *Effect on digestion.*—Professor CHITTENDEN says that in the living stomach a certain quantity of alcohol increases the flow of the gastric juices, and, though it retards the solvent action, it does not appear, in small quantities, to retard digestion on the whole, but rather appears to stimulate it. Similarly, an after-dinner cup of coffee increases the peristaltic movement of the intestine, and in that way increases the rate of digestion. It does not materially increase or decrease the rate of solvent action. So common salt, in small amount, tends to increase the rate of digestion, while a larger quantity retards it. Alcohol,

and other agents as well, taken in large quantities, produce an inflammation of the mucous membrane of the stomach. (420, 421.)

2. *Percentages in various liquors.*—Dr. WILEY says wines contain from 8 to 22 per cent alcohol, light claret having only about 10 or 12 per cent, port and champagne from 16 to 24 per cent. It is rare for wine to have more than 24 or 25 per cent alcohol, and most have only about 12 per cent. Beers have from 3 to 6 per cent alcohol, and ales, porters, and stouts from 4 to 8 per cent. Distilled liquors have from 40 to 50 per cent alcohol. Rums and gins, etc., run very much higher in alcohol than beers and wines. (54.)

XI. FLAVORING EXTRACTS AND SODA-WATER SIRUPS.

A. *Flavoring extracts generally.*—Dr. WILEY says that many of the flavoring extracts, such as lemon extracts, used for flavoring food and for flavoring soda water are artificial compositions. (585.)

Professor VAUGHAN says most of the flavoring extracts are artificial, being made from butyric ether and other chemically prepared ethers. He strongly condemns the use of wood alcohol in making these extracts, saying it is poisonous even when pure, and as ordinarily used is a very poisonous substance. (204, 205.)

B. *Lemon extracts.*—Professor MITCHELL, chemist to the Wisconsin dairy and food commission, says that according to the Pharmacopœia lemon extract, or spirits of lemon, should contain at least 5 per cent pure oil of lemon peel dissolved in deodorized stronger alcohol and colored with lemon peel. Formerly one ounce of oil in a pound of extract was required, and many of the older druggists manufacture a stronger extract than that required by the Pharmacopœia; the higher-priced extracts contain oil of lemon up to 8 per cent. When the Wisconsin law took effect many of the lemon extracts on the market contained so little oil that when put into water they did not even cloud it. They had just a little of the aroma of lemon, and were highly colored with aniline colors. Stronger alcohol was not used in these extracts, most of the expense of making them being in the alcohol. The alcohol strength ran down from 93 and 94 per cent, which it should be, as low as 18 and 12 per cent in exceptional cases. Oil extracted from ribbon grass grown in the East India islands, which has a rank lemon flavor, was used to flavor these extracts, making them smell quite like lemon extract and taste a little like lemon. Citral obtained from ribbon grass was also added. The chief extracts on the market contained less than one-tenth of 1 per cent of oil of lemon, or one-fiftieth of the amount they should have. (127-129.)

C. *Vanilla substitutes.*—According to Professor MITCHELL, the Pharmacopœia requires vanilla extract to be made with 10 per cent of vanilla beans, and alcohol and water, without coloring matter. This would make quite an expensive extract and a very strong one. Vanilla extracts are very hard to control. There are many substitutes for vanilla which in themselves are good flavoring substitutes, but much cheaper, much inferior, and perhaps somewhat injurious. The natural flavor in the vanilla bean is largely due to a crystalline substance called vanillin, which can be made artificially. It was first made from a layer between the bark and the wood of the willow, and is made from similar sappy layers in other trees. Finally, processes were found for making it from oil of cloves, the eugenol of which can be readily converted into this substance. Vanilla beans have other substances that lend form and body, but vanillin is a valuable flavoring substance in itself. The tonka bean is also used as a substitute. This is a very aromatic brown bean, formerly used for flavoring and scenting snuff, and gives a strong flavoring substance. Its flavor is due largely to cumarin, which is also made artificially from coal tar products. Cumarin causes dizziness and headache, and has marked poisonous effects when used in large quantities. Almost all the cheaper grades of vanilla extracts contain cumarin, either natural or artificial. They are almost all colored, sometimes with brown sugar. After the Wisconsin officers became able to detect the caramel color readily, the manufacturers had to get a coloring matter harder to detect, and began to use prune juice. (129, 131.)

Professor Mitchell thinks vanilla substitutes should not be sold as the genuine article, but are permissible if they can be controlled. (119.)

D. *Soda-water sirups.*—Professor MITCHELL says sirups used in soda fountains are mixtures of various chemical ethers with sirup, generally colored. They are not made from fruit except in a few instances. The Wisconsin officials have ruled that where a fruit flavor could be made from the substance itself, as lemon or vanilla, they would not permit the artificial; but where an extract from the substance itself could not be commercially made which would produce the characteristic flavor or aroma, as in the case of strawberry, banana, or pineapple, they have permitted the sale of the artificial. (134.)

Dr. WILEY says the flavoring extracts for soda water—apple, peach, and banana—are made by the same manufacturers who make whisky and brandy essences. Chemists having found out that these flavors are due to the presence of ethers which are cheaply made, the flavor of apple or peach is easily produced by fermentation and oxidization of the resulting alcohol. The flavor of the banana is one of the most abundant of synthetic ethers, amyl acetate, made of amyl alcohol, the most abundant alcohol in fusel oil. When a bottle of this substance is opened in a room the whole place will seem to be stocked with bananas. Almost every flavor nature produces, including even musk, has been imitated in a chemical laboratory. These flavors are sold for flavoring extracts and other purposes. It is unusual to get a pure fruit flavor at a soda fountain; the chances are 5 to 1 that a customer will get one of these ethers colored to imitate pure fruit flavor. They are much more convenient and cheaper to handle. They do not ferment and will keep forever. They are not injurious to health in minute quantities, but are not as good as the pure fruit, which adds to the flavor, although the real essence which gives the flavor is the same in both. The artificial essence, to Dr. Wiley's taste, is flat and not palatable. (57, 58, 585.)

Mr. JACKSON, a representative of the Association of Fruit Growers and Fruit Dealers, says that he has collected some 400 samples of pretended fruit sirups, and has had many of them analyzed, with astonishing results. Under the new law of New York, which prohibits the selling or giving of compounds with false representations as to their composition, some 48 arrests have recently been made. In many cases Mr. Jackson has found a cheap grade of oil of lemon mixed with tartaric acid. He has found such goods even in many drug stores. A compound which was sold for pure lemon juice was offered, according to Mr. Jackson, at 5 gallons for 20 cents, although it would take almost 5 boxes of lemons at \$3 a box to make such a quantity of genuine juice. The fraudulent sales of the maker of this particular compound have been stopped by the threat of proceedings under the law. Some of the soda sirups are dyed with aniline. Such practices are a fraud upon the purchaser and are injurious to the growers of fruit and the dealers in it. The fruit men do not want to drive anybody out of business, but they want things to be properly marked. They want everybody who manufactures sirups to be compelled to show the real contents of every bottle on its label. (473-475.)

Mr. DUFF has found soda-water sirups in which the sweetening was produced by saccharin and not sugar, and the color by aniline dyes. He did not find enough dye to be injurious to health if one glass of soda water were taken; but he would not say what might not result from the continuous use of such materials. (498.)

Professor JENKINS says temperance drinks are extensively colored with aniline dyes and flavored with artificial flavors. He has found dye enough in one glass of soda water to dye a piece of flannel 4 inches square a very brilliant aniline color. (453.)

Mr. WILLIAM S. EDWARDS, a dealer in mineral water, has found that a great many substances said to be poisonous are used in coloring soda-water sirups. (233.)

E. Artificial mineral waters.—Mr. MINOR, a dealer in carbonic-acid gas, asserts that it is the common opinion among the best physicians of New York that artificial mineral water, when the composition is known, is better than a natural water, as to which you do not know what you are getting from time to time. The carbonic-acid gas with which artificial waters are charged is not commonly made by the use of sulphuric acid. Not more than 2 makers use it out of 12 with whose processes Mr. Minor is familiar. Some manufacturers of mineral water manufacture their own carbonic acid from adullomite. (575, 576.)

XII. COLORING MATERIALS.

A. In general.—Dr. WILEY says a cook who understands his business seeks to produce not only a palatable dish, but one which will appeal to the senses through the eye. This has a physiological importance, the sight of food in attractive colors starting the flow of digestive juices, so that the digestion is speedier and more perfect. As many foods in the course of preservation tend to lose their natural colors, the manufacturers seek to restore or preserve them, especially in the case of green goods, such as peas, beans, cucumbers, etc., the green of which is fixed by chemicals; otherwise the chlorophyll would turn to xanthophyll, and the product would lose its appetizing appearance, becoming yellow or tawny. The substances used for fixing chlorophyll are poisonous, being principally zinc and copper compounds, but the amount necessary is very small, and most healthy stomachs would suffer no discomfiture from the ordinary quantity. With many people, however, the least possible amount upsets the digestion, so that if these materials are present, this fact should be stamped on the package. (42.)

Professor VAUGHAN sees no reason why certain coloring matters should not be used to improve the appearance of food, which has some effect upon its digestibility, but he says the general object of coloring matter is to enable the seller to sell an inferior grade in place of a higher grade. (208.)

Mr. ALLEN MURRAY, a drug and spice miller, does not think there is anything in his drug department that goes into food, unless it is a little harmless prutzeinell that ladies buy to make colored cake. (70.)

Professor PRESCOTT says copper green or copper sulphate is used quite largely in pickles and in peas, and other vegetables, acting as much or more as a mordant than as a direct coloring agent. (199.)

Dr. PIFFARD says he has met with creme de menthe colored with methyl green. It was not made from mint, but was probably a mixture of methyl and sugar, wood alcohol, and methyl green. He does not know that this is injurious, but the consumer should be protected in getting what he orders. (192.)

B. In butter and oleomargarine (see also *Oleomargarine*, p. —).—Mr. DELAFONTAINE, of Chicago, a chemist, says that until comparatively lately annatto was extensively used in butter and imitations of butter, but that recently he has examined samples of butter and butterine the coloring matter of which was not annatto, but was one of the aniline or coal-tar colors, some of which are very poisonous, or a derivative from them. (229.)

Professor VAUGHAN sees no reason why butter should not be colored with annatto. We demand June butter all the year round. Annatto is a vegetable coloring matter formerly used a great deal, but the azo compounds, which are aniline colors, are now used almost exclusively because they give a more permanent color. He thinks there would be no objection to the coloring of oleomargarine with harmless coloring matter not interfering with digestibility if it were still sold as oleomargarine. He has never found any poisonous matters in sufficient quantity to act in butter or oleomargarine, and is positive that the aniline colors used in butter and oleomargarine are not at all harmful as they are used. He thinks their use might be permitted within certain limits. (208.)

Professor PRESCOTT says coloring matter is used largely in butter and oleomargarine. In oleomargarine coal-tar colors are used, chiefly the colors called azo dyes, which have been declared to be poisonous. Professor Prescott believes them objectionable in food, at least until it shall be known which of them are harmless. He believes that any coloring matter which tends to deceive the consumer as to an article of food he is buying is also indirectly injurious. The objection to coloring matter applies in a lesser degree as between winter and summer butter, because the difference is not nearly so great as between butter and oleomargarine. In analyzing butter colors he has found them to be some preparation of annatto, which is not objectionable, but he would not be surprised if some of the ordinary butter colors now in use contained coal-tar colors. The color of azo dyes is more permanent than that of annatto. (198, 199.)

Mr. H. C. ADAMS says there are two kinds of coloring matter on the market—annatto and aniline. The latter have come into more general use of late because of the permanence of the color. They are unquestionably poisonous to a greater or less degree. In Wisconsin a child was killed by drinking a comparatively small amount—1 or 2 teaspoonfuls—of one of these coloring matters. (209.)

Dr. WILEY says annatto has gone practically out of use. A member of a firm which formerly made it exclusively has told him that they have almost absolutely stopped making it, and that there is no demand for it either from butter makers or from oleomargarine makers. (223.)

Mr. PIRUNG says the color used in his oleomargarine is a pure vegetable color made from the annatto bean; no chemical dyes are used. (315.)

Mr. STERNE declares there is not an atom of aniline dye used in the oleomargarine business. (223.)

C. In confectionery.—Dr. WILEY says the use of an innocuous coloring matter in confectionery is very important. The coloring in confectionery appeals to the individual's taste, and the manufacturers have studied the æsthetic part and obtained some of the most pleasing tints. Occasionally poisonous colors have been used, but since publicity was first given to the matter this evil has been mitigated, and the witness doubts if a single poisonous material can be found in use at the present time. Aniline dyes or harmless vegetable substances are used instead. There is no necessity for using poisonous dyes, because the desired tints can be obtained with perfectly harmless ones, and the difference in cost is very minute. Mineral coloring has been almost tabooed. Chromate of lead, formerly employed to give the yellow tint, has gone out of use. Of about 100 kinds of colored confectionery examined by the witness only 2 were found to contain mineral coloring matters, all the rest being of animal or vegetable origin, and not

poisonous. He thinks very few of the coloring matters used will prove injurious in small quantities. (30, 31.)

D. *Aniline colors.* (See also *Soda-water sirups*, p. —.)—Professor MITCHELL says aniline coloring matters are made of aniline oil, a chemical obtained from coal tar, which takes many hues. Aniline first came into importance through the production of a red coloring matter, magenta. (115.)

Mr. DELAFONTAINE says the use of coal-tar coloring matters seems to be taking the place of vegetable coloring matters, not only in butterine and butter, but in confectionery, and for red and yellow colors in jellies and preserves. (220.)

Mr. BILLINGS says very few of the aniline dyes are used medicinally. Some of them, as methylene blue, can usually be taken with impunity; others, as vermilion red, are said to produce somewhat poisonous effects from the essential aniline. Aniline is an oily fluid from which the colors are made. Dr. Billings would not recommend the use of aniline dyes in confectionery or in food. (249.)

Dr. PIFFARD says aniline dyes are used in connection with butter and wines. In France they were formerly used to a considerable extent, but were found to be distinctly injurious, and their use has been corrected in great measure by legislation. Some of the aniline colors contain arsenic as an accidental impurity; it has been found in that class of aniline known as rose aniline, magenta, fuchsin, etc. Aniline coloring matters have not been sufficiently investigated by chemists and physiologists. (191, 192.)

Mr. HELLER says the color used for sausage is aniline dye. There are different kinds of aniline dyes; some are poisonous because made by an arsenic process, and some are perfectly harmless. The imported aniline dye used by Heller & Co. is guaranteed by the manufacturers perfectly harmless. Aniline dyes are used in a good many food products; they make them look more appetizing. The coloring matters for meat contain salt. (180, 181.)

Professor MITCHELL says the better grades of colors, which are guaranteed free from arsenic, generally are not made by the arsenic process. (181.)

E. *Proposed legislation.*—Professor PRESCOTT would advise that the use of coloring matters be prohibited or declared on the label. He would not undertake to say that it should be prohibited in all cases. Some European governments have issued lists of colors which the law would permit as being harmless. With regard to confectionery he thinks this very wise. (199, 200.)

Dr. PIFFARD sees no objection to the coloring of food products if the genuine ingredients are stated. Mustard mixed with a certain portion of carbohydrate is not objectionable if it is so stated. The English have had a great deal of trouble over the question whether the artificial coloring of mustard should be permitted. (188.)

Professor MITCHELL thinks that where coloring matter covers up imitations or conceals impurity in food it ought to be ruled out, and adds that perhaps it might be better to rule out coloring matters entirely. (120.)

Dr. BILLINGS would like to see the use of aniline colors prohibited in the manufacturing of candies. (249.)

Dr. WILEY thinks the National Confectioners' Association will be ready to aid in securing a law prohibiting the use of injurious coloring materials. (31.)

Professor VAUGHAN thinks the Government should specify the coloring matters which may be used in butters and butter substitutes. (203.)

Professor CHITTENDEN says that the use of copper and zinc colors to give vegetables a green appearance ought to be prohibited. There is no question here of preservation, or of correcting the possible injurious effects of micro-organisms. The only effect is to deceive the eye. (422, 425.)

XIII. PRESERVATIVES.

A. *Various preservative agents.*—Dr. WILEY enumerates three ways of preserving food products: (1) By sterilization, or the ordinary canning process; (2) by a low temperature, as in cold storage; (3) by the use of chemicals which prevent the action of the decomposing germs. Decay in all organic matters is not produced by oxidization, as formerly supposed, but is due to the working of ferments. Anything which suspends this action or paralyzes the organisms preserves the product. (1) To destroy the organisms sterilization is practiced. If any organic substance be kept for a certain length of time at a sterilizing temperature, like that of boiling water, the organisms are completely killed, but the spores from which they come endure a higher temperature, and after a few days may develop new organisms, so that sterilization is often continued a greater length of time, or successive sterilizations are practiced, the safer way being to sterilize a second time after time has been given to develop new colonies of germs or ferments. It is not necessary to exclude the air from sterilized foods to preserve them, a tuft

of sterilized cotton over the opening being sufficient. (2) By the second method the activity of all germs is lessened as the freezing point is approached, and a temperature is soon reached at which the activity of the ferments is entirely suspended, so that organic matter can be kept indefinitely without decay in cold storage, or in the natural cold of winter. A great many ferments cease their activity before reaching the freezing point, others only at or below the freezing point; but a temperature is easily reached in which all germs are in a state of suspended animation. (2) In the third method the ferments are paralyzed by chemical reagents known as antiseptics. The use of antiseptics which arrest digestion is prohibited in most European States. (43, 44.)

Mr. I. GILES LEWIS, a wholesale druggist, enumerates four general ways of preserving foods: (1) By heat; (2) by cold; (3) by drying; (4) by the addition of some substance. He lays down the general rule that anything which itself enters into the animal economy is a harmless preservative, being absorbed as the food is digested. The ordinary materials for this purpose are alcohol, sugar, salt, and vinegar, salt and certain spices being exceptions to the rule, because they promote the absorption of the food and are really beneficial, though they might be harmful in large quantities. (33, 34.)

Dr. HENRY G. PIFFARD, of New York City, believes that the compounds of salicylic acid, boric acid, borate of sodium, ordinary borax, and formalin are the antiseptic preparations principally used as preservatives. (191.)

Dr. FRANK BILLINGS, professor of the practice of medicine in Rush Medical College, has no doubt that refrigeration is the best process of preserving foods, but it is impossible to carry it out with our present facilities, and there is no question whatever that some preservative must be used. The moment an animal is killed the formation of toxins begins as the result of the beginning of decomposition. Refrigeration may so retard that that not enough is formed to be really poisonous, and yet there will be more or less of the poison in the meat. This is absolutely stopped by a preservative. He thinks there is quite as much danger in refrigeration as there is in a borax preservative. (248, 249.)

B. Injurious effects of antiseptics.—1. *Interference with digestion.*—Professor MITCHELL, chemist to the Wisconsin dairy and food commission, calls attention to the importance of the rapidly growing use of preservatives and antiseptics. He defines an antiseptic as a substance which will stop the development of a germ or bacterial life. These antiseptics or antiferments are used in dairy products, to a considerable extent in candy, and a great deal in chopped meats, such as hamburger steaks and sausages. They are used in bulk oysters, in fish, in the brine of some cured meats, such as hams, and possibly in corned beef. They are recommended by sellers for use in almost every conceivable food that will spoil, and are almost universally recommended as being harmless and impossible of detection by chemists. Professor Mitchell considers any active antiseptic necessarily deleterious to health. It retards the processes of the stomach, stopping the working of the normal enzymes or ferments, and possibly, in some cases, stopping the changes which normally take place in the food. (111, 112.)

Dr. WILEY does not think that any manufacturer deliberately puts poisonous bodies into food because they are poisonous. Preservatives usually are not poisonous in the ordinary sense, like morphine, strychnine, or prussic acid, which attack the nerve centers, but are poisonous because they act on the digestive organs and interfere with digestion. Digestion begins as soon as the food enters the mouth, starch being changed into sugar by the saliva. Preservative materials taken into the mouth, therefore, begin at once to interfere with digestion. The saliva will often in 30 seconds change starch into sugar, so that if potatoes or bread be chewed for 30 seconds or a minute one will get practically all the nourishment it contains, as far as starch is concerned; while meat can be swallowed whole; for being digested in the stomach and not in the mouth, chewing does no good except mechanically. Meat-eating animals digest their food in the stomach, swallowing it whole, while some herbivorous animals chew their food twice. There is no preservative which paralyzes the ferments that create decay which does not at the same time paralyze to an equal degree the ferments that produce digestion; so the very fact that a substance preserves food shows that it is not fit to enter the stomach, especially a delicate stomach. (43-46.)

Professor PRESCOTT, dean of the School of Pharmacy of the University of Michigan, says an antiseptic is by virtue of its character in greater or less degree an antidigestive; an agent which will prevent fermentation or putrefaction will prevent the process of digestion by virtue of the same power. (196.)

2. *Other considerations.*—Professor PRESCOTT believes that in general preservatives and antiseptics in food are injurious to health. They invite the use of certain grades of food which the consumer would otherwise reject, and which are not rendered entirely wholesome by the antiseptic, although it may delay or even

prevent decomposition. Meat which would not otherwise be put on the market may be offered for sale after treatment with an antiseptic. Milk which has just begun to turn sour and could not be distributed to customers without the addition of an antiseptic may be brought back to something like an inoffensive condition so as to be acceptable to purchasers, though lacking the wholesome character of fresh food. (195, 201.)

Professor VAUGHAN thinks that while some preservatives must be allowed in certain foods, as a rule their use is to be condemned for two reasons: They enable men to sell poor-grade articles in place of a better grade, and enable manufacturers to be less careful in other means of preservation, as sterilization. (203, 204.)

Professor MITCHELL testifies that some antiseptics are used for improving the apparent quality of food. They do not actually improve the quality, but they cover up the poor quality. One objection to the use of preservatives is that they are coming to be used in every class of foods, so that while only a little is taken in each food, in the aggregate the consumer gets considerable quantities. (113, 116.)

Dr. T. C. DUNCAN, of Chicago, writes to the chairman of the committee expressing surprise at seeing statements that borax and salicylic acid can be used without harm, and saying that drugs can not be introduced into the system without doing violence to the organs, drugs not being foods and foods not being drugs. (47.)

C. Use of antiseptics defended.—Mr. MARC DELAFONTAINE says the outcry against the use of antiseptics is not well founded. Antiseptics have been used for centuries; that is, salt and smoke. Salt, the creosote in smoke, and vinegar for pickles are antiseptics. As the production of natural articles of food increases, and as the consumers live farther from the makers, it becomes necessary to use articles that will keep the food products fit to eat, and therefore to enlarge the list of antiseptics. The very best antiseptic affects digestion; from its very nature it will act either on the food itself or on the gastric or intestinal juices. The question is which antiseptic is least liable to be injurious. Little is known about formalin (formaldehyde) or about preservaline (sodium fluoride). The question which antiseptics are permissible, and up to what doses, is a question for further investigation. (232, 233.)

Mr. KNIGHT says that the sentiment regarding the use of preservatives is due to the use of preservatives in milk. The sentiment has extended without reason to other products, where the quantity used is so small as to be infinitesimal. (251.)

Professor EATON says the use of antiseptic preservatives in certain products is very general. He considers it safe to use them in such quantities as do not have a physiological effect. In the case of a cumulative poison, such as lead or mercury, the continued use should be taken into consideration in estimating the effect, but he does not think this should be done in the case of coloring matter or preservatives. If a single dose would not produce any effect, perhaps continued use would not. (235.)

Dr. HAINES, professor of chemistry in Rush Medical College, says that the ideal way of presenting food to consumers is without treatment of any kind, but it is often impossible to present it in a fresh state without treatment. A thousand times more damage has been done by the use of food that has not been preserved, through the generation of poisonous substances, ptomaines and the like, than by the preserving agents themselves. The use of antiseptics is therefore necessary and desirable. The question reduces itself to a choice of antiseptics. (283, 284.)

Dr. EDWARDS, while holding that fresh unpreserved food is the best, declares that it is far better to use some mild preservative than to allow decomposition to go on in food through the action of bacteria. (286.)

Professor CHITTENDEN, professor of physiological chemistry in Yale University, says that the primary object of the use of antiseptics is to prevent the development of micro-organisms. These organisms are not necessarily killed, but their growth is prevented, and the production of their poisonous products is consequently interfered with. Antiseptics do not necessarily interfere with digestion, though as a rule they would interfere with it if the quantity were large enough. (419.)

D. Difficulty of determining physiological effects.—Professor TUCKER says that it is difficult to make general statements of the effect of preservatives on health. Salt and sugar and alcohol are preservatives. There is room for difference of opinion as to the effects of borax, boric acid, salicylic acid, and formaldehyde, in the quantities ordinarily used in foods. (434.)

Professor JENKINS, of the Connecticut agricultural station, says that it is impossible to give an accurate definition of the word poison. Every man's system is a law unto itself. The comfort of living of each individual depends largely upon his learning by his own experience what agrees with him and what does not. Professor Jenkins himself can not take sugar to any extent without being

made uncomfortable or even sick by it. Yet he has known of a man who was cured of violent attacks of dyspepsia by taking large quantities of sugar. There are some people who can not endure pickles, some who can not endure food preserved with wood smoke, or much salt food. The difference between the old-time preservatives and the modern ones is that every one knew which of the old preservatives he was using, by the smell and the taste, and could learn by experience whether it agreed with him or not. The modern preservatives do not betray themselves in such ways, and the individual has no opportunity to find out whether or not they injure him. Preservatives have a legitimate place in foods, but they certainly should not be used unless the use of them is distinctly stated on the packages which inclose the foods or unless notice of the use of them is given to the buyer. (449, 454.)

Professor AUSTEN says that it is very difficult to get a competent person in this country to conduct experiments to determine the effect of foods on animals and human beings. One needs to be a physiologist, a chemist, and something of a physician. Professor Atwater and Professor Chittenden, of Yale, are eminent and experienced men in this line of work. A younger school is arising, but the members of it are very few. (537.)

E. Formaldehyde.—1. *General statements.*—Dr. WILEY testifies that there are preservatives of a gaseous nature which can be used either in a gaseous state or dissolved in water, as formaldehyde or "formalin." Wood alcohol is easily turned into formaldehyde by simply extracting the hydrogen. Dr. Wiley has received a package from a peddler, who was selling a material to keep milk sweet, called "milk sweet," which was about a 1½ per cent solution of formaldehyde. By selling it to farmers by the bottle he could make a profit of about 3,000 per cent, and he was selling it all over the State of Illinois. The witness makes no objection to its use by those who like it, but would not want to drink much milk containing it, as it paralyzes the digestive ferments. (45, 171.)

Professor MITCHELL mentions the following preservatives: (1) "Milk sweet" and "milk and cream sweet;" (2) "freezine," put out by John B. Heller & Co.; (3) "Special M. Preservaline," put up in Chicago by the Preservaline Manufacturing Company and sold by the Creamery Package Manufacturing Company, also consisting of formic aldehyde. Packages of "Special M. Preservaline" have been seized in the milk houses of certain dairymen in Milwaukee. In one instance it was found in milk, and the party was prosecuted successfully. It has been advertised very strongly by circulars and handbills. Professor Mitchell showed the committee a sample of "freezine," claimed to do the work of ice and not to affect the flavor or fresh appearance of milk, cream, or buttermilk, the label having an apparently scientific exposition of what sours milk. On analysis he found it to be formic aldehyde. (112, 114.)

Mr. HELLER submits an extract from Merck's Market Report of September 1, 1896, describing formaldehyde as a stable, aqueous solution of formic aldehyde gas (HCOH):

"According to Dr. Berloiz (Nouv. Rem., 1892) formaldehyde is perfectly harmless to man. Dr. Rideal states that he has frequently drank a 1 per cent solution without any ill effects. In a paper read before the Society of Public Analysts, London, on May 1, 1895, Dr. Rideal further states that 1 ounce of formaldehyde solution is used in the trade to do the same work as 5 pounds of the usual boric acid and borax mixture (75 per cent of the former and 25 per cent of the latter). In the case of milk, for instance, the quantity of formaldehyde necessary to preserve it is, according to Dr. Rideal, so small that it is absolutely impossible to detect its presence by the taste or smell, even on boiling, when the formaldehyde passes off as a gas. In liquids, such as beer, formaldehyde has to compete with sulphites; here again, the quantity necessary to effect preservation is much smaller than the equivalent weight of sulphurous acid, and it can not be detected by taste or smell, although when sulphites are used it is frequently possible to notice them in this way. According to Jablin Gornet, for preserving wine, 1 part of formaldehyde (as on the market) to 2,000,000 suffices; for beer, 1:1,000,000; for fruit jellies, 1:10,000. But from the reported innocuousness of formaldehyde, it may be inferred that these proportions can be safely exceeded, if necessary.

"Formaldehyde has a peculiar affinity for cellulose, thereby permanently retaining the latter in an antiseptic condition. After several days' contact with fruit or vegetable fiber the formaldehyde disappears as such and can no longer be detected by the methods of testing now in vogue.

* * * * *

"Formaldehyde solution is not eligible as a preservative of products that come into contact with iron, or whose color is due to the iron they contain—e. g., raspberries and strawberries. In such cases formaldehyde produces a purplish coloration.

"It appears from the above that formaldehyde is a valuable preservative, being at once powerful, innocuous, and convenient." (186.)

2. *Its use condemned.*—Dr. EDWARDS feels that we have yet only a small knowledge of the action of formaldehyde, but it has marked local effects; for instance, upon the upper air passages when inhaled; and it thickens and hardens the skin of the fingers. Its known effects would lead him to shun it as a preservative. (286.)

Dr. PIFFARD says formic aldehyde, which has been offered under various trade names as a preservative, is an active irritant poison. If given in homeopathic doses diluted up to the millionth or ten millionth part he does not know that it would have any effect. (191.)

Professor PRESCOTT says that formaldehyde, which is coming into quite general use as an antiseptic, is made by limited oxidation of wood alcohol. Wood alcohol is poisonous if not absolutely pure, and quite poisonous substances are included in ordinary crude wood alcohol. He counts formaldehyde as injurious and unwholesome. He does not doubt that it causes injury to some extent by its direct effects, and is sure that it causes injury by interfering with the digestive processes. (196.)

Dr. BILLINGS says formaldehyde is a product of wood alcohol, and is a bad thing to use in foods. (248.)

Dr. ALLPORT states that he has injected a one-fourth solution of formalin in water into a dead body, and within 24 hours the body was absolutely rigid; on being struck it gave a note such as one gets from a hard substance. The vapor of formalin is very irritating. It causes sneezing when it gets into the nose and throat, and it inflames the lining of the eyelids. It is exceedingly penetrating. Dr. Allport has used it for disinfecting clothing which had been exposed to yellow fever. The vapor of it was found to penetrate a pile of clothing to a depth of 4 or 5 inches. It would penetrate food products in the same way. It would render them distasteful, and, he thinks, would make them hard to digest. He does not think that any preparation of formalin could be made so mild as to be harmless in the preparation of food. (259, 260.)

3. *Its use in milk defended.*—Professor MITCHELL says formic aldehyde is absolutely deleterious when used in strong solutions, but not in the very weak strength in which it would be held in milk. "It is used in strong solutions to harden tissue for microscopic work, as it will kill and harden microscopic animalculæ very readily. If a drop of it is put into water, or any material containing those small, living organisms, they immediately give a few convulsive kicks and die. And the attempt was made by physicians, as it is such a strong preservative, to put it in morphine solutions—morphine quickly deteriorates after it is dissolved—to preserve those solutions and use them, for example, for eardrops, dropping in the ear in case of earache, and so on. But it was found that it killed the skin and the skin dried up and peeled off, and it could not be used, even in dilute solutions, in the ear, as a preservative, and the physicians who had lauded it immediately retracted their laudations." (112.)

Mr. ALBERT HELLER, of Heller & Co., says he manufactures freezine, freezem, and Konservirungs-salze. Freezine, advertised for preserving milk, cream, buttermilk, cream puffs, ice cream, etc., is also used for sterilizing and cleaning utensils in which milk is put. It is a 6 per cent solution of formaldehyde (CHOH), which is made from burning alcohol. Mr. Heller claims that it is not only perfectly harmless, but is positively healthful, especially for infants who are troubled with fermentation of the stomach. The object of the freezine is to control and retard the increase of bacteria in milk, making it more healthful. It is not used in sufficient quantity to kill the bacteria. Witness claims that by the use of freezine the percentage of loss in cholera infantum can be greatly reduced. Even in stronger solutions it would not be harmful. Mr. Heller mentions a case in which a woman took 2 teaspoonfuls of a 40 per cent solution of formaldehyde which a physician had given her for another purpose. It burned her as mustard would, and she immediately took an emetic. By the time the doctor came the burning sensation had disappeared and there were no ill effects whatever. The formaldehyde used in freezine is imported. Half a teaspoonful of the 6 per cent solution is used in 10 gallons of milk. The claim that freezine evades detection goes to show that the quantity used is so small that it is hardly a trace. Mr. Heller says if mothers would all use freezine in the milk they feed their babies the babies would not have sour stomachs, and there would be very little cholera infantum. He says there is not much freezine used. It has been shipped mostly to the East; some has been exported. Mr. Heller submits a letter from a dealer to the effect that the State of Ohio allows the use of formaldehyde in milk, but that the use of salicylic acid is a violation of the Ohio food laws. (171-176, 184, 185.)

Mr. Heller submits an extract from the Bulletin of Pharmacy, Vol. XI, p. 439, in which Prof. J. N. Hurty is quoted as follows:

"For a child affected with marked indigestion, obviously due to fermentation, I recently recommended that cow's milk be treated immediately after being taken from the animal with 5 drops of 40 per cent solution of formaldehyde to each quart, and that the child be fed with the milk thus treated. Two weeks' trial of pasteurized milk had not brought relief. Within 10 days after commencing the use of the formol-milk a decided improvement was apparent. Its continuation resulted in complete cessation of the symptoms. Now, after a 10 weeks' trial, with two intermissions, which admonished a return to formol-milk, the child is in excellent condition."

Professor Hurty goes on to say that he has himself used formaldehyde to prevent the fermentation which causes acid indigestion, with most excellent results. For 1 week, as an experiment, he took three times a day, after meals, 4 ounces of milk containing 5 drops of 40 per cent formaldehyde solution without the least untoward result. (185, 186.)

F. Boracic acid and borax.—1. *Nature and uses.*—Dr. ALLPORT says borax is made by combining about 100 parts of boracic acid with about 120 or 130 parts of carbonate of soda.

Dr. FRANK BILLINGS, professor of the practice of medicine in Rush Medical College, testifies that borax is a salt coming from the element boron, its chemical name being biborate of soda. It occurs in nature as borax and is often mined in its natural condition. It is used very commonly in medicine, and is even used in cooking very much as bicarbonate of soda is used. In recent years it has come into more common use, supplanting bicarbonate of soda both in domestic and medicinal use, because it is slightly antiseptic, stopping fermentation and decomposition better than soda, and is as good a neutralizer of acids. It is used very much in medicine for neutralizing acids and cleansing surfaces. Dr. Billings uses it every day in stomach disturbances for washing out stomachs, putting from 1 to 5 per cent in water to render it slightly alkaline to remove mucus from the surface of the stomach and to neutralize any abnormal acid which may be there. In surgery it is used as an antiseptic, both in washing and in packing wounds. It is dusted on the surface of wounds to keep them clean and to prevent the growth of pathogenic germs. (244.)

Dr. WILEY testifies that borax is used in butter, milk, and cream. (45.)

2. *In milk and cream.*—Mr. H. C. ADAMS says boracic acid or boric acid is very much advertised in Wisconsin, and when used it is used as a rule to cover up shiftlessness and carelessness in handling milk, for which there is no excuse. The tendency is unquestionably injurious to the public health. Wisconsin prohibits its use in milk. (209.)

Professor JENKINS says borax is often found in cream. (450.)

Professor MITCHELL produced a sample of "cream albuminoid" sold by the Creamery Package Company, of Chicago, consisting of boracic acid or borax mixed with gelatin powder in order to give a thick creamy consistency to milk or to thin cream. He considers it objectionable, both as an antiseptic and as a fraud, but there is a demand for such goods. (114.)

Dr. ALLPORT, a physician, states that the use of borax to preserve milk is allowed by the governments of Sweden, Norway, and Denmark. (256.)

3. *In butter.*—Mr. KNIGHT says the only antiseptic he knows of that is used in butter is boracic acid, powdered and refined to borax. So far as he knows, this is only used for the export trade; he has never heard of any being used for local consumption. The buyer can not detect it, but a chemist can detect it very readily. It is used universally in the butter that is shipped to England from Australia, in all the butter that goes from France to England, and in practically all that goes from Ireland to England. Its use in this country has been on the order of importers to England; an Englishman would order whatever number of boxes he desired and order it put up in that way. In America there is a prejudice against it and it will not be used except where it is ordered. There are laws against the use of borax in butter in Michigan, New York, and Minnesota. The butter-consuming States report no trouble about the keeping qualities of butter. The English public does not object to the use of borax, except where there is agitation. The Danish exporters of butter find it very easy to put butter into England without an antiseptic. The French butter known as Brettel-Frere butter, which is without salt, commands the highest price in England, but the most popular butter there is the Danish butter, which reaches the higher middle class. The Secretary of Agriculture used no preservative in his experiments in shipping butter to England. Americans have never made a success of shipping fine butter to England, not because of any lack of keeping qualities so much as because they

could not give a steady supply on account of the fluctuations of the home demand. (168-170.)

Mr. Knight has made a careful investigation in Liverpool, Manchester, London, and Bristol as to why American butter could not be placed on the English market in the same condition as butter going greater distances from Australia or Argentina. It was the universal verdict of butter men that American butter had not the keeping qualities of Australian, Argentinian, and French butters. One great difficulty is in the English method of taking care of butter without ice boxes. The largest importing firms told him that they would not think of importing butter from Australia or Argentina, or of putting the French butters on the market, without preservatives. They said the preservative used was practically all borax, differing from the borax that comes out of the ground in having been purified. It is mixed with the salt or sprinkled on the butter before working and worked in. Mr. Knight has been told by a representative of an Australian firm, which has charge of the exportation of 75 per cent of the Australian butter that goes to England, that they had practically come to the conclusion that the export butter trade from Australia would be a total failure without that preservative. (243, 244.)

Mr. Knight is informed that in butter exported from Australasia the rule is to use 1 per cent of borax. The working of the butter works out 20 or 30 per cent of water and about half the borax, leaving about one-half or three-fourths of 1 per cent. One-half of 1 per cent is the average advised by English importers. A certain English order for 4,000 boxes from Kansas stipulated that there should be 1 per cent of borax used, but as a rule it is taken for granted that the exporter knows how to put up butter, and they simply specify a boron preservative. America does not get very much of the English business because of the sentiment that has grown up here against the use of preservatives. The United States Department of Agriculture has for a number of years imported butters to show our butter makers what the English markets want, and then has advised them not to make butter like it. At the convention held at Sioux Falls, S. Dak., there were large exhibits, one of which was analyzed and shown to be preserved with boracic acid; but there was a strong sentiment against making butter in that way. Physicians who have made practical experiments extending over a period of years universally testify that they have had no deleterious effects from borax; while others testify that any kind of preservative is harmful on the ground that anything that will stop any kind of fermentation will also stop digestion. At one time a reward was offered for any case where it could be proved that there had been any injurious effects from the use of a boron preservative, but the case was not produced. (250-252.)

Mr. HENSHAW, an exporter of butter, says that the English trade are accustomed to preservatives in butter, and that his customers in England demand the use of borax. He has only been able to get one or two American makers to put up butter in this manner. Our people are very loth to take up new ideas in butter. (266.)

Mr. NORTH, an exporter of butter, states that in many countries on the continent of Europe and in many South American States butter which contains boracic acid is confiscated. Every European State has a law against it except Great Britain and France. In Germany the board of health forbids its introduction. In other European countries the administration of the law is under either the agricultural department or the customs department. The Danish anti-boracic-acid law went into effect on April 1, and the Brazil law about 30 or 60 days afterwards. In England the question is not settled; arrests are made in some counties for the use of boracic acid, and not in others.

Mr. CRACKÉ confirms the statement that the question is differently treated in different English counties, but thinks that this may be a matter of administration rather than a matter of law. (476-478.)

Mr. NORTH believes that boracic acid is as harmless as salt; but it ought not to be used in butter, simply because the use of it destroys the sale of American butter in so many foreign countries. It is not necessary. Out of 9,000,000 packages of butter that went into Great Britain last year only 19 per cent contained boracic acid. Denmark shipped 2,800,000 packages to Great Britain, or nearly one-third of the total, without a particle of boracic acid. Denmark rules the butter market of Great Britain, and is gaining in South America from year to year; more butter goes to southern climates in tins from Denmark than from any other country; and it is all free from boracic acid. If American butter were sent to England absolutely pure it could be distributed from there to the continental markets. This would open great new markets to our butter. Mr. North says that boracic acid retards the fermentation of butyric acid, but accelerates the formation of butyric ether and stearic acid; and these are much worse than the

acidity which would otherwise exist. Boracic acid can not, therefore, properly be said to preserve butter. (476-478.)

Mr. DELAFONTAINE has never found antiseptic preservatives in either butter or oleomargarine, but has never looked especially for them. He says the nature of the fat does not invite the use of an antiseptic. He does not know of any antiseptic which would prevent the fat from turning rancid. (231.)

4. *In meat.*—Dr. EDWARDS remarks that boracic acid, like carbonic acid, is not an acid in the ordinary sense. That is, it is not corrosive. It does not change the tissues it comes in contact with. It does not harden meat, as a brine solution does. He understands that meats preserved with borax are simply rolled in it, and that it is rather in the nature of a coating to prevent the germs of the air from reaching the substance of the meat. On this account much less of borax than of common salt is intimately mixed with the meat preserved with it. (288, 299.)

Professor JENKINS, of the Connecticut agricultural experiment station, states that borax has been found in 1 or 2 chickens brought from the West, and has been found in considerable quantity in sausages. From 8 grains to over 50, making seven-tenths of 1 per cent, have been found in a pound of sausage. Out of 75 samples of fresh oysters, 13 were found to have been treated with borax in quantities varying from $\frac{1}{4}$ grains to more than 38 per pint. (450.)

Mr. ROBERT T. LUNHAM, of Boyd, Lunham & Co., pork packers, of Chicago, testifies that his firm uses borax only in its export meats. He would hardly call it a preservative, as it is used more to protect the meat than to preserve it. The meat is preserved before the borax is applied. The English people formerly found fault with the meat because it was too salty, and it was necessary to find something to obviate that. After a good deal of experimenting and investigating, it was found that borax was just the article required. It has served to solve the whole problem. They said, "That is what we want. Why didn't you give it to us before?" Boyd, Lunham & Co. began to use it in 1875, and their trade has been increasing ever since. The city of Liverpool alone will take from 18,000 to 20,000 boxes of bacon weekly. Twenty-five years ago they would not take that amount in a year. Ninety-five per cent of the meat for the fancy English trade is packed in borax, as directed by the orders. At the head of every page in the code books used are the words "To be packed in borax." If enough salt were put on to keep the meat in condition, it would be too salty. The meat is kept in salt or saltpeter until it is safe, and then packed with the borax sprinkled over it; but it does not cure any more. The borax has no effect on the strength of the ham. Mr. Lunham has always been under the impression that the meat did not absorb any of the borax whatever. A certain amount must remain on the surface, but the percentage must be very small. As little borax as possible is applied, because it is expensive. It simply keeps the meat from getting slimy when exposed to heat in transit. When it gets to England, the borax is all washed off. Members of the firm who have gone over and seen it unpacked have stated that there is about as much borax washed off as there was put on. From 1 to $1\frac{1}{2}$ per cent is used on the surface of the meat; as high as 7 pounds to the box of 500 to 600 pounds. If the meat is dry, less is used, because less adheres to it. It is brushed off as much as possible to economize the borax. If borax could not be used, something would have to be found to take its place. The Germans want their meat the same way as the English. Some classes of meat if shipped in salt would arrive in such shape that they could not be used, especially pickled cured meats, shoulders, etc. Mr. Lunham thinks that for the first year or so Boyd, Lunham & Co. were about the only users of borax. By degrees the other packers found themselves compelled to use it, and it has now been in general use for fully 20 years. Mr. Lunham has seen customers of the firm who eat the boraxed meat regularly. They look very healthy, and laugh when asked if it disagrees with them. He has never heard of persons being made sick through the use of borax. When he takes meat home, he always has it rubbed in borax. It keeps the flies off in summer. (239-242.)

Mr. HENRY ELLSWORTH, a commission merchant of Chicago, says that shippers do not think they can ship meats except in borax, and his experience has always been satisfactory when meats were so packed. He shipped by mistake a shipment of hams, half of which were packed in salt instead of borax, and the hams that were in salt got out of condition and were refused. He never had any trouble with meat shipped in borax, and never had any complaint as to its healthfulness. The orders from abroad stipulate that the meats shall be packed in borax. The meat is nearly always shipped before it is entirely cured. It is put into a box and rolled around in the borax. He does not believe that the borax goes into the meat, but thinks it keeps the pickle which cures the meat from running out. All packers use the same method. (253-255.)

5. *Injurious effects.*—Dr. DUNCAN submits a clipping from the London Lancet, a medical authority, to the following effect:

R. B. Wild distinguishes two forms of intoxication from boric acid—one in which a large quantity of the drug is rapidly absorbed, producing vomiting and diarrhea, general depression, and partial paralysis of the nervous and muscular systems, and perhaps death, a rash also being noted in many cases, especially some days after the absorption of the drug; the other class of cases results from the use of comparatively small doses of the drug for long periods. In some of these it is mentioned that the kidneys are diseased, and the author gives as a possible reason for immunity to the injurious effects of the acid its very rapid elimination by healthy kidneys. It is possible that cases of intoxication occur more frequently than is recognized. Boric acid may be unwittingly taken in food and cause a toxic skin eruption, which may be mistaken for eczema, psoriasis, or exfoliative dermatitis. A 1:500 solution corresponds to a 17.5 grams per pint of the acid, a very large dose for an infant on milk diet, and likely in some cases to produce disturbance of the alimentary canal. It should be ascertained that milk ordered in cases of kidney disease is free from excess of boric acid or borax. The use of boric acid or borax in surgery and their internal use should be carefully guarded in patients with diseased kidneys, and immediately discontinued on the appearance of dermatitis or other toxic symptoms. (47, 48.)

Dr. PIFFARD says there is no question in his mind as to the injuriousness of borax, and he expressed himself to that effect at the hearing given by the New York State senate committee in January, 1899. (191.)

Professor PRESCOTT says that his remarks as to the injurious effects of salicylic acid apply also to borax, the only difference being one of degree. (200.)

6. *Their wholesomeness affirmed.*—Mr. DELAFONTAINE says that boracic acid seems to be harmless, but is a comparatively poor antiseptic. (233.)

Dr. STRINGFIELD says that his experience has taught him that borax is absolutely harmless. (282.)

Mr. HELLER says that boracic acid is more healthful than saltpeter. (179.)

Dr. HAINES says that boracic acid produces a much less deleterious effect upon meat than common salt or saltpeter; that the juice of meat treated with it is retained more nearly in its natural condition. While cases of bad effects from boracic acid have been reported, he has failed to find a single case in which the bad results could not be reasonably attributed either to excessive doses, or to the disease for which the acid was used, or to personal idiosyncrasies, or to impurities in the acid. All these modifying circumstances are as likely to occur in the use of common salt or saltpeter as in the use of boracic acid. Certain persons can not take much salt without injury; others can not take saltpeter without injury. Boracic acid has caused fewer deaths than they have. Dr. Haines has in a medical way administered 10 grains of boracic acid four times a day for weeks and months, and has never seen a single case in which there was the slightest unwholesome effect. On the contrary the very happiest results have often followed such administration. His investigations have led him to believe conclusively that boracic acid and borax are not more dangerous than common salt and saltpeter as food preservatives, and are for various reasons to be preferred to them. (284, 285.)

Professor CHITTENDEN says that his experiments indicate that small amounts of borax increase rather than decrease the rate of digestion. This is especially true of boracic acid, which, combined with sodium, produces borax. If the quantity is large enough, nausea and vomiting are produced. In the analyses that have been reported at the agricultural experiment station in New Haven the percentages found have always been too small to be dangerous to the public health. Professor Chittenden would not consider one-half of 1 per cent of boracic acid in butter objectionable. (421, 422.)

Dr. BILLINGS says the dosage of borax is about like that of soda; for a grown person 10, 20, or even 30 grains three times a day for a week or two would be safe—probably more than one would get in butter and meat in a year. One does not give that amount continuously; one would not think of giving soda or common salt daily in that amount; the stomach would not tolerate it after a time. Borax, or boric acid (which is the essential acid from which borax is made) like everything else, would be poisonous if overused medicinally, especially in certain individuals, as some individuals have idiosyncrasies even as to the use of simple foods, such as honey or fresh fish; but there is no common bad effect from borax. Dr. Billings considers it no more injurious in overdosage than common salt would be. Fish and meats preserved with common salt, if used too frequently and without other foods, produce scurvy; and if meats preserved with borax were used in the same way an untoward effect might be produced; but he thinks the same amount of borax can be safely used as of salt. There is probably no more danger in its constant use than in that of salt. Both common salt and

borax, or boracic acid, up to 2 per cent, increase the power of salivary, stomach, and intestinal digestion, and apparently hasten digestion. More than 2 per cent apparently retards it. From 1 to 1½ per cent of borax on meat probably could not do any special harm, but it would be impossible to have that amount of borax on food when it was simply put on to preserve it; it penetrates the surface of the meat only to a slight extent. It has come in recent years into more common use in preserving meats, especially hog products, and in preserving butter, because it was found that these things kept better with it than with common salt. (244-246, 250.)

Dr. ALLPORT says that he considers borax and boracic acid identical in their antiseptic effect. The salts of soda are in most cases almost entirely harmless. They can be given in doses three or four times as great as the corresponding salts of potash. Saltpeter is a potash salt, and in Dr. Allport's judgment more dangerous than borax. He has administered from one to two teaspoonfuls of boracic acid in a day without any harmful results. The effect of any substance which limits bacterial growth is in general rather to increase the digestive powers of the gastric and intestinal juices. Boracic acid is given in large doses, from 5 to 10 grains, in many forms of acid dyspepsia. Dr. Allport has never had direct knowledge of any case in which boracic acid has produced poisonous results, though he knows that such cases have been recorded. Boracic acid is applied to wounds; in some cases as much as half an ounce at a time. It may then remain undisturbed for from 6 to 15 days, and no evidence of irritation of the skin will appear. It is applied to extensive burns without any injurious effects, though burned surfaces absorb large quantities of harmful drugs. Dr. Allport knows of no medicament that is so harmless and so productive of benefit to the system by the extirpation of germ life as boracic acid. He considers that there should be no opposition to the use of it as a coating for meat. One of its many advantages is that it is readily soluble in water, and can be removed, if removal is thought desirable, by washing.

Any alkaline salt is harmful to the system if used in large quantities. Salt meat produces scurvy. It is probable that such an effect would not be produced as quickly by the use of borated meat. (256-260.)

Mr. NORTH, although he opposes the introduction of boracic acid into butter for commercial reasons, believes that boracic acid is as harmless as salt. He has taken half an ounce of it in a glass of water, and it has done him no harm whatever. (477.)

Dr. HENROTIN states that he has had many years' experience in the use of boracic acid and borax, both internally and externally. He has used it in nearly all the cavities of the body. Even when it is applied externally it is absorbed to a certain extent. He has never seen an instance in which any irritating or poisonous effect could be traced to it. He considers it absolutely innocuous. (264, 265.)

Professor DE SCHWEINITZ says that in spite of the great hue and cry, especially by Germany, in regard to the use of borax and boracic acid in preserving meat, the work done from a physiological standpoint has proved as conclusively as such work can prove that they are perfectly harmless. Liebreich has shown conclusively that more irritation is caused by salt than by borax or boracic acid. The determinations of any one investigator, however, need to be verified by others, and Professor de Schweinitz would not recommend the use of borax or boracic acid. (614.)

Professor JAMES, editor of the *National Druggist*, says that he made large use of borax in preserving milk, meats, etc., while he was in the Confederate army, and that at a later time he spent nearly 5 months in the summer in the swamps of the Mississippi bottoms with 16 white men, besides colored drivers, and used boracic acid freely to preserve fresh meat, milk, etc., whenever they could be got. During those 5 months not a single man was sick. In particular there were no bowel complaints. Professor James ascribed this fact entirely to the use of boracic acid. When the Australian trade in refrigerated meats began, between 20 and 25 years ago, violent attacks on preservatives were made in the French journals. Professor Le Bon and Dr. Pelligot were especially prominent. Both of these men were afterwards convinced, by using it, that borax is a desirable preservative, and became strong advocates of it. Professor James very strongly favors the use of borax and boracic acid, and believes that they are as harmless as common salt. (267, 268.)

Professor James introduced in connection with his testimony a report of an English case, in which an attempt was made to put a stop to the sale of ham treated with borax. The medical testimony reported was overwhelmingly in favor of the absolute wholesomeness of borax, and the prosecution failed. (269-276.)

Professor James also introduced a report of a case tried at Solingen in September, 1898, regarding the use of ham preserved with boracic acid. The medical testimony as given in the report is overwhelmingly in favor of the use of boracic acid as a preservative. Dr. Liebreich stated on the trial that he had preserved sea fish with boracic acid, and eaten them for 8 days continuously, and that large dinners had been served with these fish without the least unpleasant results. The court held that the injuriousness of boracic acid had not been proved, and dismissed the complaint. (276-279.)

Dr. EDWARDS, professor of medicine in the Chicago Medical College, says that experiments show that 10 per cent of borax or boracic acid may be used without greatly interfering with salivary digestion; and this is far more than is used in preserving any article of food. Boracic acid, even in large doses, seems rather to aid than to retard digestion in the stomach and bowels. It is used medicinally in large doses; in the old days, when epilepsy was treated with borax, from 60 to 100 grains were not infrequently given without any noticeable effect on the organs. Relatively large doses are given even to children. It is used as a mouth wash for the new born, and infants may be allowed to swallow considerable quantities of it without any injurious effect. Burns are saturated with it to exclude germs; practically every other antiseptic is interdicted because of the danger of absorption. It is used in washing out the cavities of the body, even in the most delicate individuals. It is not certain that any death has ever been caused by boracic acid. Considering the small percentage of borax and boracic acid which is used in food it is absurd to object to their use as preservatives. (287-289.)

G. *Preservative agents for meat.* (See also *Boracic acid and borax*, pp. 97-102.)—
1. *In general.*—Referring to the "embalmed meat" question, Mr. HELLER says that hams and bacons are actually embalmed, chemicals being used in curing them. It is absolutely necessary to use preservatives in order to cure meats to keep. Some use only salt and saltpeter, some use boric acid and salt. Boracic acid is often used in connection with saltpeter. All dry salt meat purchased by the English is required to be rubbed with boracic acid or borax; they will not buy it otherwise. The object in using boracic acid is that a mild-cured ham can be produced with a better flavor; without it, it would be necessary to use a very strong brine, and the meat would be hard, dry, and salty. The curing takes just as long with boracic acid as without. (179, 180.)

Professor MITCHELL showed the committee several samples of meat preservatives: (1) One, boxed and sold in Milwaukee, was called "New Method Meat Preserver," "highly recommended for preserving and protecting fresh meat, pork, liver, sausage, pudding, bologna, summer sausage, hamburger steaks, and chopped meats." Two ounces were to be used with every 100 pounds of meat. On analysis this was found to be sulphite of sodium, an undesirable food. (2) "Rosaline," a mixture of salt and niter, an aniline coloring matter, to make sausage look bright red, and probably some other substance. (3) "Freezem," sold by Heller & Co., for chopped beef, composed of sulphite of sodium, with a little coloring matter. (113, 114.)

Dr. EDWARDS says that some of the dangers of diseased pork are unquestionably removed by proper curing. (289.)

2. *Sulphur and its compounds.*—Dr. ALLPORT says that sulphur forms a hard coating of sulphides on the outside of meat. It has been said that sulphur vapors are not of value as preservatives because they do not penetrate. Dr. Allport regards the treatment with sulphur as next in value to the treatment with boracic acid, and preferable to formalin, salicylic acid, carbolic acid, or corrosive sublimate. (260.)

Dr. WILEY says sodium sulphite is common sodium with sulphurous acid. (178.)

Mr. HELLER says that in the preparation in which Heller & Co. prescribe sodium sulphite there are 2 ounces to 100 pounds of meat, or 8½ grains to 1 pound of meat. By taking half a pound of meat a man would get 4 grains. It is used only in chopped meat and hamburger steak. It is prescribed by physicians for fermentation of the stomach, to be used in quantities of about 4 grams or 60 grains 3 times a day. It is also used in medicine to cure canker sores in the mouth. The object of using it in chopped beef is to preserve it and to give it a nice color. If hamburger steak is allowed to remain on the counter without sodium sulphite in it, it will become tainted in a very short time; it begins to turn dark in two hours. If a preservative is used, the ptomaine germs and other poisonous germs can be prevented. Mr. Heller contends that a very small proportion of preservative in hamburger steak is absolutely healthful. (178.)

Professor MITCHELL says that butchers are in the habit of keeping a package of such compounds as "freezem" and sprinkling it upon odds and ends of fresh meat, which are cast into a barrel, and when enough has accumulated this is

ground up into hamburger steak; he has seen that done in Milwaukee. If a preservative were not used, they would have to keep the scraps in the ice box and work them up into hamburger steaks in small batches, after much shorter periods of time. This is part of the criticism he makes on the use of such preservatives. (183.)

Professor PRESCOTT says that what he said regarding salicylic acid applies also to sulphite of soda. The only difference is one of degree, and not sufficient to make any difference in legislation. (200.)

3. *Salt and saltpeter.*—Professor PRESCOTT says salted meats are, in a sense, preserved meats. Common salt might be counted as a preservative, but is not wholly such; is in itself an article of food. (195, 201.)

Dr. BILLINGS says common salt is decomposed in the stomach and forms hydrochloric acid, the natural acid of the stomach. When taken in certain amounts it is salutary. The hydrochloric acid in the stomach is an antiseptic, and is the thing above everything else which preserves the body against germs which enter the stomach. It very materially wards off cholera and typhoid-fever germs. Common salt, if taken in large amounts, instead of producing that salutary effect, will sicken the individual and produce blood states similar to scurvy. (245.)

Dr. HAINES says that salt and saltpeter, especially if an excessive amount is used, cause the juice of meat to run away, so that much of the value of the meat is lost. They also affect the fiber of the meats disagreeably, and make them less palatable and less digestible. Common salt used in large quantities is dangerous, and death has been caused by excessive doses of it. Saltpeter has caused many deaths. (284.)

Dr. EDWARDS agrees with Dr. Haines as to the undesirable effect of salt and saltpeter upon meat, and says that salt probably produces as many deaths as any of the milder antiseptics. (286, 287.)

Dr. BILLINGS says that saltpeter is far more deleterious than common salt, borax, or bicarbonate of soda. It is a nitrate of potash, and potash salts have a more deleterious effect upon the body than do soda preparations, having a tendency to produce degeneration of muscle, and a considerably injurious effect upon the kidneys when constantly used. The nitrates have a more specific effect in that way than do the carbon compounds. (247.)

Mr. HELLER says saltpeter has a direct effect on the kidneys which in some cases is not beneficial. (179.)

4. *Smoking.*—*Pyroligneous acid.*—Mr. HELLER says meats are still smoked, the object being to give them a flavor and color, not to cure them. This is sometimes done with pyroligneous acid, which is condensed smoke. (180.)

Dr. WILEY says pyroligneous acid is the distillation of smoke. (180.)

5. *Refrigeration.*—Dr. ALLPORT says that refrigeration is an excellent means of preserving meat, provided the temperature is maintained steadily at from 30° to 33°, and provided the meat is consumed as soon as it is removed from the cold room. The danger is in the tainting of the meat after it comes out of the refrigerator. (260, 261.)

H. *Salicylic acid and other preservatives.*—1. *Sources and nature of salicylic acid.*—Dr. WILEY says the most common antiseptic used in food preservation is salicylic acid, which was formerly derived by a very costly process from the willow, but is now made very cheaply from carbolic acid by a simple chemical treatment. Salicylic acid is preferred to creosote for the purpose of preserving foods, because it has no odor and scarcely any taste. He thinks every package of food preserved in that way ought to be marked, not prohibited. (44, 45.)

Dr. BILLINGS says salicylic acid is a natural product of some plants, especially the wintergreen. It is found to the extent of about from 70 to 80 per cent in wintergreen oil. The salicylic acid of commerce is made synthetically from petroleum; it is more directly harmful, and frequently irritates the stomach. It is used frequently in rheumatic disorders, but it disturbs the stomach very easily, and so is used in such compounds as salicylate of soda and salicylate of phenol. It is used as a preservative on meats, etc., but in very much smaller quantities than anything else. If mixed with boracic acid, it makes a compound so bitter that no one would eat the meat. It is a splendid antifermentive and does not need to be used in large amounts. A quarter or perhaps one-tenth of 1 per cent would stop the fermentation of cider, for instance, and in that amount would do absolutely no harm. (248.)

2. *Injurious effects.*—Professor PRESCOTT says the effect of the continued use of salicylic acid, which has perhaps been used more than any other antiseptic, is injurious to the organs of secretion. (195, 196.)

Dr. WILEY says salicylic acid is very deleterious to health. Most stomachs can take a little salicylic or sulphurous acid with impunity, but when the flow of

pepsin is insufficient or deficient in quality, they interfere very seriously with digestion. (44.)

Professor CHITTENDEN says that according to his observation the effect of salicylic acid is almost invariably to retard digestion. It is said that the long-continued use of it produces local effects on the mucous membrane; but he does not know by personal experiment. He questions the propriety of the use of it. (421, 425.)

Dr. EDWARDS, professor of medicine in the Chicago Medical College, holds that salicylic acid should not be used as a preservative if it can possibly be avoided. Certain individuals may suffer serious accidents from it. It depresses the heart; it often congests the lungs; it is apt to disturb the digestion. It may irritate or actually inflame the kidneys. In susceptible infants it may produce delirium or convulsions. (286.)

Dr. STRINGFIELD says that salicylic acid depresses the heart and the respiration. It is more dangerous now that it is made from coal tar than it formerly was when it was made from oil of wintergreen. Dr. Stringfield has had cases in which death has seemed imminent, where the patient has said that he has not drunk anything but beer, but has been drinking that for several days or a week or two. He has had cases where death was apparently due to depression of the heart caused by the use of salicylic acid. Dr. Stringfield does not specifically state that the beer to which such results were attributed was analyzed to determine the presence of salicylic acid. (282.)

Mr. HELLER says there are preservatives which are dangerous to health; salicylic acid is one of these, and is never used by Heller & Co. (178.)

Mr. THURBER says that the consensus of opinion of medical men is that salicylic acid is deleterious. It is true that the quantity must be considered; a very small quantity of any substance may not be injurious, while a larger quantity would be. (581.)

Professor JAMES, editor of the National Druggist, is opposed to the use of salicylic acid, because many individuals can not tolerate it, even in minute quantities, on account of idiosyncrasies. Besides, it gives an unpleasant flavor to things in which it is used to any extent. (268.)

Professor VAUGHAN has seen at least one person very severely poisoned from drinking cider containing a very large amount of salicylic acid. He does not know how cider can be kept without using a little salicylic acid, and thinks it should be allowed in a prescribed amount. (204.)

3. *Its use defended.*—Professor TUCKER thinks that salicylic acid is the least objectionable of the preservatives now said to be commonly used. He believes it has been prohibited in several foreign countries, at least in goods for home consumption. He would not give it as his opinion that it is necessarily harmful to all persons in such small quantities as may suffice to preserve certain foods; but there is some evidence tending to that view, and he thinks that when it is used in any article it would be desirable to have the fact stated upon the package. (435.)

Mr. DELAFONTAINE says that salicylic acid, which is tabooed in some countries, seems to be very largely used here without any apparent harm. This may be due to the fact that very little of it can be used, it is so little soluble. (282.)

Mr. SCHWARTZ regards salicylic acid as wholesome. He states that it is used in large quantities as a medicine for rheumatism, etc. (368.)

4. *Salicylic acid in wines and grape juice.*—Dr. WILEY says that wine and some other high-grade beverages often contain salicylic acid. Of six samples of wine which he purchased for examination, one, of domestic origin, contained no preservatives, and two whose labels indicated foreign origin also contained none. The other three, which were nominally foreign, contained salicylic acid. (45, 586.)

Dr. Wiley says grape juice, such as is used in churches for communion service, is now generally made of salicylic acid and a little bit of grape juice. It can very seldom be found composed of pure fruit juice. (44.)

Dr. McMURTRIE says that unfermented grape juice preserved by carbonic-acid gas under pressure is preserved by the most desirable agent available. He considers such juice much pleasanter than that preserved by pasteurization or by the use of acids. (603.)

5. *Fruit preservative.*—Professor MITCHELL exhibited to the committee a preservative compound for use in canning fruit, composed of salicylic acid, salicylate of soda, and phosphate of soda. The manufacturers sell the process, which they call "the American woman's standard canning process," and give the material. Their circular states that it is not a salicylic-acid process. Owners of large orchards will frequently pay a large sum for the process and will put up their goods unknowingly with salicylic acid, without boiling and using less sugar, and so innocently injure the public. The ingredients are deleterious. The manufacturers rented a booth at the State fair and hired a lady to show canned goods pre-

served with this material. The fruit had not been boiled and was very bright and of good color. They find ready sales and their counters are generally crowded. (115, 116.)

6. *Cider preservatives.*—Professor MITCHELL says that cider was formerly made and used while it was fresh and sweet, and when it got sour it was allowed to go into vinegar and sold as such. But now it seems that cider merchants think it necessary to keep cider in its apparently new state by the use of preservatives, which the witness thinks objectionable. (116.)

Professor HALLBERG says cider is now preserved chiefly with fluoride of ammonia or soda, one of the most powerful disinfectants. When it decomposes it furnishes hydrofluoric acid, which is used to etch glass, and is the only substance known that can not be kept in glass bottles. (85.)

7. *Saccharin.*—Dr. WILEY says that saccharin is not a sugar, but a coal-tar preparation, having a sweet taste, but indigestible, every particle taken into the body passing off unchanged. It has no food value, but is an antiseptic, and therefore retards digestion; is an excellent paralyzer of ferments, and a sufficient quantity will arrest digestion completely. It has been used very extensively as a preservative. (44, 53.)

1. *Beer preservatives.*—1. *Comparative disuse in domestic beer.*—Dr. WILEY testifies that salicylic acid has been used very largely in preserving beer, which must either be sterilized (which is preferable) or contain a preservative, unless it is to be consumed within 10 days or 2 weeks after bottling. Otherwise, beer subjected to the ordinary high temperature of summer would speedily disintegrate and lose its flavor and have an excess of gas. Nearly all dealers recognize the necessity of using preservatives when sterilization is not practiced. Salicylic acid has not often been found in beer since attention was called to its harmfulness in the report of the Agricultural Department on beverages. (44, 45.)

Mr. THOMANN, secretary of the United States Brewers' Association, says that he can not state whether or not a brewer here and there may use preservatives. He knows that dozens of brewers do not use them. He has frequently found brewers unwilling to ship beer for long distances because they were opposed to using preservatives and could not guarantee that their beer would keep. On this ground brewers declined to send their beer to the Paris Exposition.

Dr. WILEY confirms this statement of Mr. Thomann's, saying that the almost universal response from brewers who were invited to make exhibits of beer at the Paris Exposition was that they were unwilling to send their beers to be placed on exhibition for perhaps 6 months, and afterwards tested by a jury, because their beers contained no preservatives, but were only pasteurized, and could be kept by that means for not more than 2 or 3 months. (356-359.)

Mr. PABST states that he uses no salicylic acid or other preservatives in his beer. He has heard of its being used, perhaps 8 or 10 years ago. Knowledge of beer making has increased since then. Bottled beer is pasteurized now, and Mr. Pabst does not think that salicylic acid is used by any brewery in this country. (312.)

Mr. OEHRNE says that antiseptics may have been used years ago in bottled beer, but that since the adoption of pasteurization he does not think that any have been used. It is not necessary, and he can see no reason for it. It is possible that some salicylic acid may still be used by a few brewers for preserving bottled beer, but not 5 per cent of the beer made in the United States is bottled. (294, 296.)

Mr. BUSCH asserts that if beer has a proper age in the cellar before it is turned out for consumption it needs no preservative. What spoils beer is the yeast which may remain in it when it is sent out. It should "lager" or lie in storage for from 3 to 6 months. Then all the yeast will settle, and there will be no need of preservatives. (488.)

Mr. EVANS, a brewer of ale and porter, says that he uses no preservatives in his products and does not pasteurize them. Ale and porter do not spoil as lager does in shipping. Present-use ale, made for immediate consumption, does not have a chance to spoil. It is all fermented in the bottle. Stock ale is brewed with the idea of keeping in any temperature. It may be kept even in wood from 18 months to 8 years, according to the character of the goods. (417.)

Mr. HACHEMEISTER, treasurer of a brewing company, says that his company uses no preservatives whatever. Beer that is to be shipped they simply pasteurize. (415.)

Mr. BAUER, a brew master, says that no preservatives are used in his beer. (290.)

Mr. LIPPE says that he uses no antiseptics in his beer. He sells beer only to men who have facilities for pasteurizing it. If a foreign house should apply to him for goods in bulk he would make it plain to them that the goods would not

keep unless they were subjected to a very low temperature. Beer can be shipped without damage on the large steamers which have cold-storage facilities. The pasteurizing process can not be applied to beer in wood. The heat would have to be very great to penetrate 2 inches of wood and the great bulk of the contents. (381, 384, 385.)

Mr. KRUESLER, a brew master, says that he does not use any preservatives or antiseptics in his beer. (377, 378.)

Mr. HUPFEL says that he uses no preservatives or antiseptic in the manufacture of his beer. He thinks he did use some salicylic acid about 10 or 12 years ago for bottling purposes in the summer. (379.)

Mr. THOMANN says that pasteurizing has largely done away with the necessity of using antiseptics in beer. The process does, however, take away something of the fine flavor of the beer. Beer drawn freshly from the wood is considered better. (357.)

Mr. FECKER says that while the use of preservatives may have been necessary years ago, it is not necessary now, since the introduction of ice machines and pasteurization. His company has used none for years. It would be a waste of money to use salicylic acid. (298.)

Mr. PLAUTZ, secretary of the United Brewing Company, declares that pasteurization preserves beer as long as it needs to be preserved, and that there is consequently no need of using salicylic acid or any preservative in either keg or bottled beer. If one were to export bottled beer to a southern climate it would probably be well to put a little salicylic acid in it. Mr. Plautz does not know of any brewery which uses salicylic acid or any similar preservative. (300, 301.)

Professor VAUGHAN thinks there is no need of using salicylic acid or any other preservative even in export beer, if it is properly made and properly sterilized. (204.)

Professor JENKINS states that of 7 samples of ale examined by the Connecticut agricultural experiment station only one was found to contain salicylic acid. (452.)

The printed testimony is accompanied by an anonymous statement entitled "doctoring beer," to the following effect: The preparation of beer, in consequence of scientific research, is now more deliberate, methodical, and reliable than formerly. Beer is a beverage prepared from cereals, as barley, rice, corn, or wheat, seasoned with hops, and fermented. In former years articles were added to give a certain taste or increase its stability, but this practice was given up by brewers almost on their own account, because it appeared useless, and it was found that with proper management the natural way was best. Stability only remains a vexed question. The brewers do not willingly emancipate themselves from certain preservatives, which perhaps promote carelessness and unprofessional work, but there is no room in beer for chemicals of any kind, as distinguished from the natural product. Brewers can get along without carbonate of soda, salicylic acid, benzoic acid, saccharin, ammonium fluoride, etc., and must reach the point where they can prepare stable beers of good taste without adding foreign substances. There is no objection to sterilizing beers by high or low temperatures, but brewers ought to have nothing to do with drugs, for they can not take the responsibility for them, which belongs only to chemists and physicians, and their use shows a certain lack of competency, giving their enemies a weapon, enabling them to bring the brewing trade into disgrace, and affording a pretext to legislatures to lay their hands upon the industry. Germany, the greatest and most renowned beer country in the world, has long since done away with these drugs, and the scientific and practical authorities of that country, who speak with respect of American brewing methods, are shocked by the public advocacy of preservatives. (49, 50.)

2. *Use in beer for export, bottling, and long shipment.*—Mr. BROWN, president of the Long Island Brewery, says that he uses preservatives only in beer for export or for distant shipment. He has experimented with salicylic acid, but has not been very well satisfied with it. He does not use any preservatives in barreled beer, but would think it necessary if beer in barrels were to be shipped to a great distance and subjected to changing temperatures. (386.)

Professor MITCHELL says preservatives are used especially in beer for bottling and exporting. Brewers who have good methods do not need to use them in lager beer which is quickly consumed, but in bottled beers which are shipped long distances the easier way is for the brewers to use preservatives. He has found antiseptics in some of the bottled beers. (116.)

Mr. ZELTNER, a lager beer brewer, says that he uses salicylic acid in beer which may go out of the country and be kept for an indefinite time. (456.)

Mr. WACKENHUTH, brew master for Ballantine & Co., says that he uses salicylic acid for bottling beer only, and only for about 5 months in the summer. He considers everything that he uses perfectly sound and healthful. (412.)

Mr. WYATT states that there is practically no use of antiseptics in barreled beer designed for draft purposes, except when it is shipped, as it sometimes is, from one end of the continent to the other, and may be exposed to severe and sudden changes of temperature. In such cases it has been customary, and he has advised brewers, to use salicylic acid, which he regards as the least harmful of antiseptics. The amount used would be about one part in five thousand, or a little less than half an ounce per barrel of 31½ gallons. That is about one-fourth grain of salicylic acid per glass of beer. Mr. Wyatt would only advocate the use of antiseptics when it is absolutely necessary for the preservation of the beer. He has never known of the use of any other preservative than salicylic acid and bisulphite of lime. He has heard of various others being proposed, but has always denounced them. The great majority of brewers do not do a shipping trade, and never use a particle of salicylic acid. (406, 407.)

Mr. SCHWARTZ, a consulting brewer, says that salicylic acid and compounds of sulphurous acid, such as the sulphites of sodium, potassium, and lime, are used in moderate quantities in shipping and bottled beers. He considers them necessary, and harmless in the quantities in which they are used. Whether the beer is in wood or in bottles, if it is to be exposed to frequent changes of temperature, something should be added to keep it good. Even when beer is pasteurized a little preservative should be added. It is impossible to employ sterilized bottles; the filling implements, hose, and so forth, are more or less exposed to the air, and it is impossible altogether to exclude bacteria or to be sure of destroying them by steaming. It is not necessary to add a preservative to beer which is to be used near the place of manufacture, and without long keeping.

Alluding to the fact that the addition of preservatives to beer is forbidden in Bavaria, Mr. Schwartz says there is no country where there is more complaint about the quality of beer, and he attributes the complaint to the lack of preservatives. It is impossible in any country, he says, to exclude the germs of bacteria. They cause a change of flavor and taste, which can not be stopped because the use of preservatives is forbidden. The result is that the beer is found poor and bad and it is thought that the brewer must have used improper materials.

Mr. Schwartz would recommend for bottled beer about half an ounce of salicylic acid to the barrel of 31 gallons, or less than one one-hundredth of 1 per cent. (367, 369, 372.)

Mr. WIGAN, a brewing master, says that he uses bisulphite of lime, and he seems to intend to say that he also uses salicylic acid. He would not use so much as one one-hundredth of 1 per cent. The general tendency is to increase the quantity used with the warmth of the climate. Yet in his experience in England he used rather more than he is accustomed to use in America. (375, 376.)

3. *In foreign beers.*—Mr. WYATT says that he has had occasion to analyze imported beers and ales and wines and has almost invariably found preservatives in them. He would use them if he were shipping to a foreign port. The phrase "Bass stink," which used to be used to describe the smell of Bass's ale, referred to the odor of sulphuretted hydrogen, which came from the bisulphite of lime which was used as a preservative. A long series of experiments, extending over many years, has shown that bisulphite of lime has no injurious effects whatever, and is a much more desirable antiseptic than salicylic acid. It is found impossible to use it in this country. People will not drink American beer which contains it. The trouble may be in the nature of our water or in some fault of manufacture. (407.)

Mr. SCHWARTZ states that imported lager beer contains about the same amount of salicylic acid which is used in this country, and that imported ales from England contain sulphites in larger quantities than are used here. (372, 373.)

Mr. PLAUTZ thinks that all beers imported into this country contain a very little salicylic acid. The Bavarian Government prohibits the use of salicylic acid, but would not prohibit it, Mr. Plautz thinks, if the beer were to be exported. (300.)

Mr. THOMANN says that the Bavarian law forbids the use of preservatives in beer, but he thinks it is tacitly understood that preservatives may be put into beer which is to be shipped beyond seas. Mr. Thomann does not believe that the beer could be sold here in such an excellent state of freshness if preservatives were not used. Bass's ale has a peculiar smell when the bottle is opened, which is sometimes called the "Bass stink." This is the smell of the preservative. (358.)

Dr. WILEY says that among 15 different beers bought at different places in New York, at least half of them being foreign, 4 were found to contain salicylic acid. Of the foreign bottled beers, 2 samples contained salicylic acid in quantities sufficient to preserve them from fermentation. Of the domestic beers bottled and sold within 2 or 3 weeks only 2 contained salicylic acid. (584.)

Mr. ERTEL, an importer of beer from Bavaria and Bohemia, asserts positively that the beer which he gets from Munich contains nothing but malt and hops.

The Bavarian Government would not allow the use of salicylic acid or any other chemical. The beer which is exported direct from Germany has consular investigation at Munich, and is shipped in bond to the United States. (290, 291.)

Mr. ROCHE, who imports Bass's ale and Guinness's stout in hogsheads and bottles them at New York City, declares that they are put into the bottle without the addition of any adulterant or preservative. They undergo a secondary fermentation in the bottle, which increases the proportion of alcohol and carbonic acid. The witness does not add any yeast or other material. (414.)

An affidavit of Mr. LA TOUCHE, managing director of Arthur Guinness, Son & Co., Limited, was presented, in which it was asserted that the stout brewed by that company for exportation keeps in the bottle for an indefinite period, though exposed to a wide range of temperature, and that no antiseptic and no material of any kind, except malt, hops, yeast, and water, is put into it. The stout brewed for export has a larger proportion of hops than that brewed for the home market, and this helps to preserve it. It is stored and matured from 1 to 2 years in large bulk vats. The specific gravity of the extract of malt before it is fermented is from 1072 to 1074. On the market it contains about 6.1 per cent, by weight, of absolute alcohol, and 6 per cent of solid matter. The company is opposed to the secret and uncontrolled use of antiseptics, and believes that the bulk of the credited evidence tends to prove that the use of them is physiologically injurious. It is admitted that malt liquors which contain little malt extract and little alcohol due to fermentation would require some preservative to enable them to withstand severe atmospheric and climatic conditions. Beer brewed from perfect materials, with a high proportion of hops and of alcohol, will remain sound and palatable for an unlimited time. (544-546.)

J. Proposed legislation.—1. Publicity.—Dr. WILEY maintains that no food should ever be offered for sale containing a preservative without that fact being plainly marked upon it. He would not prohibit the use of preservatives, as they are often desirable in certain articles of food, as in catsup; but each preservative should be used under its proper name and be properly understood by everyone using it. Even a remedy should not be used under a name by which it is not known. There is a fraud upon the public in using a very cheap substance under an unknown name and selling it at an immense profit. (44, 184.)

Professor JENKINS says that the United States Government, if it passes a pure-food law, ought to forbid the use of antiseptics that are not evident to the taste and smell, unless their presence is called to the attention of the purchaser, either by a label or in the sale of the article. (454.)

Professor A. B. PRESCOTT, dean of the School of Pharmacy at the University of Michigan, believes that preservatives should either be prohibited or announced upon the label or in the name of the food. (195.)

Dr. FRANK BILLINGS, professor of the practice of medicine in Rush Medical College, believes that Government officials, both national and State, should place upon food packages a notice indicating how the contents are preserved; but he thinks that they should also convey to the public the fact that the ingredient used as a preservative is practically harmless. He believes that the best way would be to have a national board. (247.)

Mr. ALBERT HELLER, of Heller & Co., believes that harmless preservatives should be allowed to be used in food, in order to cheapen food products in certain cases. If they were marked, the poorer classes would be afraid to use them, or backward in buying them. A law requiring the marking of all food products would affect the manufacturing industries very much indeed, and do great damage to the country. (181.)

2. Limitation.—Professor HALLBERG says antiseptics should not be entirely prohibited, but their use should certainly be limited. We should not rely upon the various manufacturers to use their own judgment; the limit must be placed by high medical authorities after thorough investigation. (81.)

3. Prohibition in certain cases.—Professor VAUGHAN thinks no salicylic acid or butyric acid or anything of that kind ought to be allowed in preserving fruits or jellies, because if the sterilization is complete these things can be kept without any antiseptic. (204.)

Professor PRESCOTT thinks it would be wise to prohibit the use of salicylic acid in malted liquors and wines, and the use of certain other preservative agents in foods. There may be some cases in which it would not be expedient to prohibit the use of preservatives. He would not undertake to decide as to the absolute rejection in all cases of such an article as saltpeter or niter in the preparation of ham. (195, 196, 201.)

Mr. HELLER says deleterious substances should not be allowed, but if no preservatives could be used the manufacturers would have to quit business. The substances which are found to be harmless should be allowed. (182.)

XIV. DRUGS.

A. National Pharmacopœia.—Mr. C. S. N. HALLBERG, editor of the Western Druggist, professor of pharmacy of the Chicago College of Pharmacy, and a member of the committee on the revision of the Pharmacopœia of the United States, says that since 1820 delegates from all the medical and pharmaceutical societies of the United States have met in Washington every 10 years and chosen 25 members to issue a work which is the standard of authority for medicine. Outside of pharmacy, there is no standard for the identity, quality, purity, and strength of natural substances. He believes that a national food law should be based upon a work of standard authority, defining what natural substances are, their derivation, composition, strength, purity, and quality, as in medicine. (80.)

B. Unofficial and adulterated drugs.—1. *General statements.*—Professor HALLBERG says that in drugs and medicines outside the Pharmacopœia, the compounder must print the formula on the labels. This has now been in vogue largely more than 10 or 15 years, but has been so much abused that there is no longer any faith attached to the formulas. He thinks the adulteration of drugs has been carried on to a very great extent in this country. (86.)

Dr. PIFFARD says the adulteration of drugs is usually for the purpose of cheapening them, but it is dangerous to permit adulterations reducing the strength of drugs. (194.)

Professor MITCHELL says that most of the impure drugs he has met with were simply not properly purified to conform with the medicinal strength required. The drugs most adulterated are those commonly in use, such as household ammonia, root beer, so-called cherry phosphate, etc. (124.)

Mr. MURRAY says he has certain formulas to grind and mix to order for certain manufacturers, as for hog cholera. In most cases the ingredients are pure drugs, but some are not. (71.)

2. *Bromo-seltzer.*—Dr. PIFFARD refers to the offering by drug manufacturers of mixtures under names which give a false idea of their composition. The general impression is that bromo-seltzer is composed largely or wholly of bromide of potassium, or some other bromide, and the ingredients more or less natural to seltzer water. As a matter of fact, some of the bromo-seltzers contain very little bromide of potassium, their effect being due to some much more injurious substance. He mentions a case of acute poisoning from bromo-seltzer, in which the apothecary admitted that it was mainly acetanilide, and another case of poisoning in which an active poison had been added to the bromo-seltzer, but the chemist stated that there was acetanilide in it also. Dr. Piffard therefore presumes that the use of acetanilide in the place of bromide of potassium is rather prevalent in these mixtures. It costs less to produce an equivalent effect, and it is used as a cheapener. (194, 195.)

3. *Black antimony.*—Professor HALLBERG says there has not been any black antimony in the market for years, except in chemical specialties. What has been sold as black antimony is a mixture of powdered coal dust. Farmers formerly used this largely as an ingredient in powders for hog cholera, but of late there has not been much black antimony used, because the farmers found that they could get better results by burning corn. In this case the imitation or substitution proved a good thing, leading the farmers to see the great value of the grain for chemical purposes. Black antimony is defined as a sulphide of antimony, the ore out of which Brice tried to make gold. (84, 85.)

4. *Paints and linseed oil.*—Dr. WILEY says barytes or sulphate of barium is sold as terra alba. It is very heavy, weighing more than any other white earth known. The witness has never found it in food products, but it is used largely in adulterating paints. It is a stone which makes a perfectly white powder, absolutely insoluble, even in the strongest acid. The only way to dissolve it is to fuse it in a white heat with caustic alkalis. (32.)

Dr. Wiley testifies that corn oil, extracted from the germ of the grain, is a partially drying oil, and has been used to adulterate linseed oil. He considers the oil adulterated in this way very much less valuable than pure linseed oil. (21, 22.)

C. Legislation.—1. *Imported drugs.*—Prof. HALLBERG says there used to be a great deal of adulterated opium brought to this country, but the United States Pharmacopœia fixed a minimum limit of morphine in opium at 9 per cent, and now the revenue officials examine all the opium imported, and do not permit the importation of any opium unless it contains 9 per cent of morphine. This shows the value of a standard. (83.)

Dr. PIFFARD says the United States Government does a great deal to prevent adulteration by refusing admission into this country of adulterated and inferior drugs, but it does nothing to prevent their adulteration after they are here. He hopes the proposed legislation will cover the matter of drugs. (193.)

2. *Poisons in proprietary medicines.*—Professor FREAR considers that when proprietary articles contain substances which are poisonous in an overdose, purchasers ought to be warned specifically what is present, or warned that an overdose should not be taken. (484.)

XV. GENERAL PURE-FOOD LEGISLATION.

A. *Foreign laws.*—Mr. I. GILES LEWIS says in some countries—Germany and France, for instance—the pure-food laws are very stringent, and make any violation a penal offense. He considers the English law unquestionably the best food law, because it applies to food for export as well as to that for home consumption, while the German and French laws allow antiseptics to go to foreign countries which would not be allowed to be used at home. This is especially noticeable in cheap German and French wines and in low-grade products usually sold to the poor, high-grade products being guaranteed by trade-marks, etc. While the Germans are very particular about the quality of their beer, it seems almost necessary that products containing very little alcohol which are to pass through the Tropics should have some other preservative. The English law compels the manufacturer to put on his labels exactly what the articles contain. Mr. Lewis thinks it rather oversteps itself, the manufacturer of the best mustard in the world being compelled to state that his high-grade mustard contains flour, which is absolutely necessary to preserve the mustard and to insure its delicate flavor when put into water. Every label must truthfully represent what the package contains, in a general way. The English law does not require the use of revenue stamps, and the Government issues no certificates. The witness considers the English law rather lame in this respect, viewed from our standpoint, but explains it by saying that the English people do not, as a rule, export foods, other than condiments. (34, 35.)

Dr. WILEY says the laws of most European countries forbid the addition to food products of certain antiseptics, such as saccharin and salicylic acid. (44, 52, 53.)

B. *State laws.*—1. *In general.*—Dr. PIFFARD says that in most of the States there are laws governing the adulteration of foods and drugs which look to be pretty good laws, but are insufficient, either (1) through the failure of the necessary appropriation to enforce them or (2) through lack of sufficient knowledge on the part of the officials charged with their enforcement. To illustrate a third cause of failure of these laws, Dr. Piffard says he has read the report of a chemist to the committee which employed him stating that he did not think it would be judicious to take action against the brewers, as that was such a large interest. Dr. Piffard made up his mind that the fellow was either a knave or a fool. (193, 194.)

Mr. THURBER testifies that he placed a thousand dollars at the disposal of the National Board of Trade some 12 years ago, to be awarded in prizes for the best draft of a food-adulteration act. A committee was formed consisting of a chemist, a jurist, a physician, and two business men, of whom Mr. Thurber was one. This committee awarded a first prize of \$500, a second prize of \$300, and a third prize of \$200 for the best drafts of an act to prevent the adulteration of food. The committee then formulated an act, taking the first-prize act as a basis, and the committee's draft is the foundation of the regulation of food in New York, Ohio, Illinois, New Jersey, Massachusetts, and other States. Most of the States have made variations in their provisions, but the definitions are largely those which the committee outlined. (580.)

Mr. MURRAY says that some of the State laws, as in Michigan, do not allow the sale of mustard or any other article that is adulterated or colored. (69.)

Professor AUSTEN says that bills have been introduced in various State legislatures making it a misdemeanor to use alum in the preparation of foods. In Missouri such a law was passed. A bill to enact exactly the same law was recently introduced in the Georgia legislature, but it did not pass. One was before the Virginia legislature when Professor Austen testified. He understood that similar bills were to be introduced in the legislatures of Massachusetts, New Jersey, New York, Connecticut, and perhaps some other States. Professor Austen understood that such bills were to be introduced in all legislatures where it was practicable, and as nearly as possible at the same time. He declared that the bills all emanated from one source, and that the whole movement was an attempt to gain the assistance of State legislation in preventing the sale of competitors' products. (538, 534.)

2. *New York.*—Professor TUCKER, director of the State board of health of New York, says that the law of New York with regard to pure foods is perhaps sufficient, but the difficulty is that the appropriations are not large enough for con-

stant inspection and for the prosecution of offenders. The law forbids the use of deleterious constituents, and a food preservative, if found to be deleterious, would not need to be specifically named in the law or the regulations of the board. The State board of health has a right to fix standards of purity for foods, but has not done so except in the case of mustard and one or two other articles. (433, 434.)

General examination of foods and drugs is under the control of the State board of health, except that dairy products and vinegar are under the State board of agriculture. A special law fixes the standard for vinegar at 4½ per cent, he believes, of absolute acetic acid. (434.)

3. *Pennsylvania.*—Professor FREAR states that the pure-food law of Pennsylvania, based upon the English laws, was passed in 1895, though special laws relating to milk, oleomargarine, and vinegar had been passed earlier. Since 1895 a very general examination of food products has been made, and a very widespread use of adulterated materials and misbranded goods has been revealed. The use of false brands has, however, been greatly reduced by the law of 1893. Sophisticators are constantly introducing new substitutes and new devices for evading the requirements of the law, but the cost of doing it is naturally increased, and the number of sophistications now found is much less than formerly. Public sentiment, too, has constantly grown in support of the effort to repress the sale of food preparations under misleading names. (528, 529.)

Professor Frear says that the most valuable feature of the Pennsylvania pure-food law is that which defines adulteration to consist not simply in the addition of injurious materials or the subtraction of valuable material, but also in the selling of goods under a false brand. The law does not require descriptive branding of articles, but forbids false branding. A preparation composed of glucose and containing no honey could not be sold as honey in the State. A mixture of 95 per cent of glucose with 5 per cent maple sirup could not be sold as maple sirup. Offenders are liable to a fine, and for a second offense to imprisonment. (481, 482.)

4. *Wisconsin.*—Professor MITCHELL says that Wisconsin has a prohibitory law against filled cheese, and that the matter is also well regulated by the national law. There were formerly 200 factories in Wisconsin making filled cheese, but there are now none. (110.)

Professor Mitchell says the law of Wisconsin establishes the standards found in the Pharmacopœia. In enforcing the law discretion has been used, so that when articles fall slightly below the standard the seller has not been prosecuted, but in flagrant cases of adulteration the Pharmacopœia has been used as evidence of what the standard product should be, and the courts have never failed to support the State officers. (122.)

Professor Mitchell reports the manufacturers of the purer and stronger flavoring extracts as saying that their sales have trebled in Wisconsin since the enactment of the State law requiring the composition to be stated. (124.)

5. *Ohio food commission.*—Professor HALLBERG says that a commission composed of two inferior chemists was founded in Ohio in 1898 to examine Scott's cod-liver oil, and reported that it was loaded with morphine. Examination afterwards showed that there was no morphine in it, and the food commission of Ohio was placed in jail. Anyone familiar with the situation, Mr. Hallberg says, would know that there could not possibly be any morphine in this preparation. (80.)

C. *National law needed.*—1. *General proposals.*—Dr. WILEY calls attention to the lack of any Federal law in this country forbidding traffic in foods preserved in any way; nor is there any national law that would prevent the introduction of adulterated foods from abroad unless it could be proved to a court that they contained injurious ingredients, in which case they could be excluded under the general act forbidding the importation of injurious substances. There is no recent law regarding this matter, and unscrupulous dealers can send to this country articles which their own laws forbid them to expose for sale at home. This applies to wines, beers, and preserved foods of all kinds. Immense numbers of sausages and other kinds of meat are imported, and only a chemical examination can show how they are preserved. There being no law regulating their sale in this country as there is in the country of origin, we are placed at a disadvantage. State laws regulating commerce in adulterated foods can not reach manufacturers in other States; hence the necessity of a Federal law. (53.)

Professor FREAR says that the burden of prosecution under State food laws necessarily falls first upon the retailer, and often altogether upon him. No doubt he is often guilty of knowingly selling spurious articles, but he is often himself the victim of deception. When the goods have been bought from persons outside the State, he has practically no redress. Moreover, goods sold in the original packages

are free, under the decisions of the Supreme Court of the United States, from any interference by State law. A national law is therefore absolutely necessary to supplement the efforts of the States. Congress can control the whole matter within the Territories, and can also save our legitimate food manufacturers from the competition of cheap, misbranded, and adulterated substitutes imported from foreign lands. It can preserve the reputation of American products abroad, and so extend our export markets by the stopping of exportation of inferior and misbranded products. (529, 530.)

Mr. BERRY, of the Chicago Sirup Refining Company, thinks a national pure-food law would be a grand, good thing. The States that have pure-food laws compelling goods to be marked for what they are have a decided advantage over the States without such laws. In the States with pure-food laws the demand for pure goods is increasing. (97.)

Mr. GREAME STEWART, a wholesale druggist, urges the necessity of a national pure-food law. Various States—Michigan, Illinois, Wisconsin, Minnesota, and others—have pure-food laws, and errors are very likely to occur in the shipping of goods on account of a lack of uniformity in these laws. For 10 years the merchants and manufacturers of Chicago have been clamoring for a national pure-food law. It now requires a lawyer for each State to know what the requirements are. With a national law goods could be shipped without fear of violating any local law. It would expedite business. (73.)

Mr. SCULLY, of the D. B. Scully Sirup Company, thinks national legislation the better plan if we are to have pure food. Now every State has different ideas, and manufacturers have to put different formulas on goods going into different States. This is very complicated and annoying. (93.)

Mr. H. C. ADAMS, dairy and food commissioner of Wisconsin, thinks there should be a national pure-food law beyond any question, and that Congress should go to the limits of its constitutional authority in making that law comprehensive and stringent. Congress could not cover the whole subject, because it could regulate the matter only as it applies to interstate commerce, the Territories, and the District of Columbia, but it could give the States a model food law. There are now food laws on the statute books of every American State, but they vary in character, and it is simple justice, not only to the consumers, but also to the manufacturers, that uniformity should be secured if possible. The tendency of strong national legislation would be to secure that uniformity. (207.)

Professor MITCHELL raises the objection against State legislation that the laws in the various States do not correspond, and manufacturers in sending goods into various States have to be careful about labeling and sending the goods. The manufacturers would like uniform legislation, and he thinks that none of the State departments, except one or two, would object to it. Professor Mitchell thinks national legislation establishing standards very desirable. It could at least regulate the sale of goods in the Territories and traffic between the States, and the State laws could easily control home manufactures. A State can control the goods brought from another State and offered for sale within its own limits only through a hardship on the retailer who buys them in good faith. (122-124.)

Mr. AUGUSTINE GALLAGHER, president of the Modern Miller Company, is very much in favor of a national food law governing every food, condiment, drink, and drug offered for sale for human consumption. He is satisfied that the opposition of some of the trusts and of the feed-stuff manufacturers has defeated general pure-food legislation for the last 10 years. Mr. Wedderburn has assured him that the pure-food bill was defeated in the Fifty-third Congress by the cotton-seed mill influence. (4, 136.)

2. *Label law desired.*—Professor MITCHELL, chemist to the Wisconsin dairy and food commission, thinks national laws do more than local legislation, and thinks it very desirable to have a national law compelling the marking of food substitutes for what they are. This would form a basis for legislation in the various States. Everything would be as good as the national law required, and in some States they would go a little further if they could enforce it locally. (111.)

Dr. WILEY favors a general food law requiring things to be sold for what they are. He says that the consumer pays the price, for instance, of genuine cream of tartar, but he has no protection in regard to the genuineness of the article. The city or the State can protect its own people in some degree, as many of the States are doing, but the root of the evil will not be got at until the General Government places its hands on the business. (587.)

Dr. WISE, medical inspector, United States Navy, suggests the regulation of the sale of food in the manner in which the sale of proprietary medicines is regulated in Italy. According to his account the article offered for sale bears a plain statement of its formula. Samples are gathered in the market from time

to time and carefully analyzed. If the article differs materially from the formula, the license of the dealer or vender is revoked and he is subject to fine or other punishment. (627.)

Dr. PIFFARD says wherever a mixture of two wholesome substances is offered as a pure article, this should be punished, but he would not prevent the mixing of two harmless substances if the nature of the composition were indicated. As the English law expresses it, the consumer should have a substance of the nature and kind demanded, and not some other kind. (187, 192.)

Mr. HOBBS, editor of the National Provisioner, would favor a national pure-food law which should require certain chemical purities, and should secure proper labels on packages, so that the buyer might get a correct description of his purchase. Such a law is needed, not only for the integrity of our home trade, but for the integrity of our trade abroad. (496.)

Mr. SCULLY says his company would be very glad to mark the ingredients on each package if their competitors did. In States which have no law requiring it, he thinks it would be a disadvantage to state on the cans that certain grades of maple sirup contained glucose. Retailers would object to it even at the reduced price at which it is sold. If there were a national law compelling all to publish formulas, it would be just as profitable in every way and much better than now; it would remove the element of doubt and suspicion, and people would know just what they were buying. (93, 94.)

Mr. STEWART'S idea is not to prohibit the sale of adulterated goods, but to require them to be branded and sold for what they are, to prevent the dishonest cutting of prices by jobbers and retailers, many of whom sell glucose jellies at half price. The same applies to honey and baking powder. He is strongly of the opinion that goods should be branded just what they are. (79.)

Mr. FURBAY suggests a law which would operate in same way as the mixed-flour law on all classes of food. (62.)

Mr. MONRED, a dairy expert, says the most simple way to cover all food products is to require them to be branded for what they are, as in the case of flour. A national law compelling all foods to be branded would cover the situation. (65.)

Mr. P. M. HANNEY, a manufacturer of cereal foods, thinks it very beneficial to require manufacturers to put a formula on each package, as in the mixed-flour law, to which he would make no amendments. (59, 60.)

Mr. MARC DELAFONTAINE says that the requirement that the composition be stated should really apply to all kinds of mixtures. He thinks the English law requiring the label to state what is in the package is best. (231.)

Mr. ROSSATI thinks that the branding of goods made in this country in such a way as to lead the public to believe that they have been imported, or the refilling of a foreign package with a home-made article, is a fraud which the law ought to prevent. It also causes a considerable loss to the revenue by substituting home-made goods for the foreign goods which would pay import duty. (448.)

5. *Prohibition desired in certain cases.*—*a. Injurious substances.*—Mr. THURBER thinks that the correct labeling of articles and the selling of them for what they are protects the public sufficiently against paying more than goods are really worth. It is not sufficient, however, when the question relates to goods which are injurious to health. In many cases the consumer does not know whether a given article is injurious or not. This is especially true of the poorer people, who are under the greatest temptation to buy cheap articles. Scientific terms are used, which convey no clear idea to the ordinary consumer. When the consensus of scientific opinion pronounces the use of certain articles to be injurious to the health, mere publicity ought not to be relied on. The public authority ought to forbid the use of them. (581, 582.)

Dr. PIFFARD does not think that any substance whatever which is actively harmful in ordinary quantities should be permitted to be used in food in any quantity. When a mixture contains substances which are entirely harmless in gross quantities, they should be labeled as mixtures. (191.)

b. *Dilutants.*—Professor MITCHELL says that compounds containing materials no one would knowingly use ought to be prohibited entirely, and should not be permitted to be sold even with a formula. If a man sells a pail of adulterated pepper labeled adulterated pepper on the side in small letters, it is taken into a grocery and put under the counter or on the counter with the label toward the grocer. In Professor Mitchell's opinion the mixing of foods like flour or buckwheat middlings with foods of an entirely different class, such as condiments, should be entirely prohibited, since they add nothing to the value of the food, but are used for the purpose of reducing the strength and cheapening the product. (118, 124.)

4. *Legal standards.*—*National commission.*—Mr. LEWIS favors a national pure-food law, if properly drawn, but not one similar to the State laws. Many manu-

facturers prepare their products so as to meet the varying requirements of the laws of the several States. Mr. Lewis says the advantage of a pure-food law is twofold—to prevent the marketing of injurious articles of food and to induce manufacturers to raise their standards, so that the food will be accepted in any part of the world. He says the line can not be drawn between harmful and harmless adulteration in a law, but that this should be determined by a commission of experts, for while there can be no harm in using small quantities of alum to harden cucumber pickles, there would be great harm in allowing alum to be used as a preservative instead of salted vinegar; and canned corn may require a slight amount of antiseptic to prevent it from souring. The extent to which these things should be used should be determined by a commission of experts with facilities for getting information. This commission should, at the request of any manufacturer and at his expense, appoint a custodian for the factory with authority to issue labels, numbered consecutively, to be put upon the products, the custodian to have access to all books and workings of the concern, and to be able to acquaint himself thoroughly with everything done. When in doubt he could reserve his opinion for the decision of the commission. Thus every product would go out with a certain established grade, and purchasers would know exactly what it contained. The value of canned products now depends upon the reputation of the manufacturer. Under this plan there would be a Government guarantee, which would enhance the value more than it cost. This would be of value, especially in foreign countries and in local markets where the manufacturers are not well known. The commission might also examine the requirements of foreign markets and issue bulletins of what is required. The commission should be under a department of commerce, the value of food inspection being as much to enhance the value of food abroad as to protect consumers at home. The law should be so framed that anyone should have the privilege of buying any kind of food wanted and not be compelled to take a Government guarantee, for many small manufacturers could not afford to employ a Government custodian and would be satisfied with a local reputation. The employment of the custodian should be voluntary, but goods not inspected would not bring the prices they do now. Mr. Lewis thinks that if there were sufficient confidence in the commission it would hardly be necessary to give notice of the presence of small quantities of preservatives, but baking powder containing large quantities of alum, being deleterious to the health, should be so labeled; the Government could not give its guarantee to a package of that kind if the commission should decide that alum was deleterious to the health. Mr. Lewis believes that the quality of the food eaten has as much to do with morals as the quality of literature absorbed, or even more. (36-39.)

Professor HALLBERG says that, excepting a few articles which the Government has found it necessary to fix the standard for, as in the lime test for kerosene, the polariscopic test for sugar when a bounty was to be paid, and more recently for flour, there is no standard for measuring the quality, purity, and strength of natural substances outside of pharmacy. He believes that only a national law will be sufficient. The laws in various places are often deficient, and for the most part are administered by unqualified or ignorant persons. The administration of national law must be placed under a national board of health. So many questions come up pertaining to the adulteration, sophistication, and substitution of foods that can not be settled except by scientific medical research that even the Department of Agriculture can not settle these complications. Professor Hallberg holds it absolutely necessary that there should be a national board of health, or department of health, with branches, working if necessary in conjunction with the Department of Agriculture, to settle disputed questions and fix a definite standard with certain limitations as to the quality, strength, and purity of various substances.

Professor Hallberg says that if there were a national board of health to which such questions could be referred all the trouble about such articles as canned roast beef would be avoided. (80, 81.)

Professor Hallberg is opposed to the idea that it is only necessary to state on the label the composition of the food. It would be very difficult to enforce a penalty for dishonest formulas, because organic chemistry is only in its primitive stages in this country, and very few chemists can make a correct examination of any food product. Mr. Hallberg believes that many things used in food products are deleterious to health and should be absolutely prohibited. In baking powder a statement of the formula would not be sufficient protection, because people do not know the chemical reaction that will take place in a certain mixture; and a great many things are in a similar category. Nothing short of some high authority working in conjunction with the Agricultural Department, with experts to study these questions and report to the people, and absolute prohibition of every-

thing proven beyond question to be deleterious to health, would be sufficient. He would give this authority power to make limitations, and to make rules and regulations in regard to the branding of foods, and to establish certain standards below which none should go. This principle could be extended to nearly everything. The sale of anything falling below the standard prescribed by the board should be prohibited, except possibly under certain restrictions. Deleterious things should be prohibited. He would prohibit the use of white clay in flour, and would put a limit on all antiseptics. He thinks the board should prescribe a standard strength of capscum and designate what should be used to weaken it, as done by the Pharmacopœia, which prescribes dilutants, chiefly sugar and milk, which have no deleterious effect. It is very hard to distinguish between what is absolutely injurious and what is not nutritious. How far the board should go in prohibiting is a matter that would have to be decided by very careful work by men of the very greatest ability who have devoted their whole lives to the subject. Having everything labeled clearly as to substance would be a step in advance, but not a great step. The label might state in the case of baking powder that it contains gypsum or plaster of paris, which many must contain, because a great deal of the cream of tartar is half gypsum; but the average housewife would not know its injurious effects. (81-87.)

Professor CHITTENDEN, professor of physiological chemistry in Yale University, says that a general law forbidding the addition of poisonous substances to food would be insufficient. It is very difficult to agree upon what constitutes a poison. Hydrochloric or muriatic acid is present in the gastric juice to the extent of 0.2 of 1 per cent, and is an indispensable agent of digestion. In concentrated form it is one of the most violent poisons. So is acetic acid, which, in a dilute form as vinegar, is one of the commonest preservatives. We can not say that all poisonous substances must be excluded from foods. We can insist upon a law which will compel the makers of food products to label them in such a way as to show the nature of the substances which have been added and the quantities. There ought to be a commission or some authority to which products could be referred, with power in such matters. Professor Chittenden thinks it desirable to fix standards of composition for food products so far as it can be done, and says the proposed commission would be of great value in that connection. (418, 419, 422, 426.)

Professor TUCKER would favor a national commission of experts to determine questions relating to the use of preservatives and adulterants. Such a commission would give us the actual facts, while legislative bodies are now likely to depend largely upon the partisan views of those who are interested in the sale of certain articles. The commission would be a guide for State legislation, and its conclusions would probably be enacted into law in the various States. Further, there would be a great saving in having one national body to conduct investigations instead of a great number of State commissions, which are likely to duplicate each other's work. (436, 438, 439.)

Dr. HENRY G. PIFFARD, of New York City, does not believe that any enactments of Congress will be sufficiently comprehensive to remedy all evils, but he believes that Congress should authorize an investigation into food products offered for sale in this country, and authorize a commission to determine what may be considered adulterants. Legislation going as far as national authority will permit should be enacted, and with this as a basis and guide the State legislatures could supplement the acts of Congress. The effective carrying out of preventive measures will rest rather with the States than with the General Government, but a great deal of legislation which Congress should enact could be copied en bloc into State legislation, with such additional measures, especially as regards penalties, as the States might see fit to enact. (187, 188.)

Professor VAUGHAN says there should undoubtedly be a national board of health, or a board devoted to the subject of foods, and declares it a disgrace to the country that there is not such a board. Aside from the question of sanitation, it would give American foods a standard value in other countries and help our exports. He thinks it would be quite impossible to fix standards for all foods, as is done for medicines. This can be done for milk, but he does not see how it can be done for bread, meat, etc. (206, 207.)

Dr. WILEY says the Department of Agriculture has for the last twenty years been devoting a large part of its time to the investigation of foods, and has a thoroughly equipped corps of scientific experts who would be ready to assist in the enforcement of a pure-food law. No other existing department being so much interested in the subject, it seems to me that under the present organization of the Government the enforcement of such a law would naturally fall to the Department of Agriculture. (89.)

Professor JENKINS thinks that legal standards for certain foods ought to be fixed, though he is not prepared to speak of the method which should be adopted. (455.)

5. *Objections to Government guaranty.*—Professor MITCHELL thinks the standards of foods ought to be fixed by Congress rather than by a board. He thinks it is not desirable for the Government to guarantee pure-food products. Food products generally should be pure, and when they are adulterated it is time for the law to step in. He does not understand that the object of pure-food laws is to permit any department of the Government to be used for the commercial advantage of any one or more firms. (124, 131, 132.)

Professor TUCKER doubts the advisability of attempts to guarantee the quality of particular products by law, so long as adulterants injurious to health are excluded. A law forbidding the sale of oleomargarine is unjust; it may be fit for Russia, but not for the United States. If a man buys a pint of olive oil for 20 cents, Professor Tucker does not know that the State is called upon to protect him against the substitution of cotton-seed oil or peanut oil. It might be proper to forbid the sale of oleomargarine as butter, and to forbid the sale of glucose as honey, and to forbid the sale of cotton oil as olive oil; but he would not consider it a matter of great importance. There are much more important matters that ought to have attention first. (437.)

6. *Brosius bill.—Regulation without taxation.*—Professor FREAR states that the Brosius bill is essentially that which has been approved by the Association of Agricultural Chemists in 1897. It was accepted in a modified form by the National Pure Food and Drug Congress in 1898, and certain modifications of it were suggested by that organization in January, 1899.

It is patterned after the English law, and prohibits the adulteration and misbranding of food products and drugs. General legislation of this character is considered preferable to any attempt to specify particular articles. Adulteration and misbranding affect practically all classes of foods and drugs, and are so manifold in device that piecemeal legislation could not furnish an adequate remedy. The Brosius bill avoids the tax feature which, if nominal in amount, is often interpreted as approval rather than disapproval of certain food substitutes, and if heavy, may prevent the introduction of valuable cheap foods. Finally, by placing executive control in offices already established, it avoids unnecessary increase of expenditure and the establishment of new political places. (526, 527.)

Oleomargarine, filled cheese, and flour are, according to Dr. WILEY, the only products concerning which there is any Federal legislation to protect the consumer and the honest producer. The laws relating to these articles, when properly enforced, give sufficient protection, but he believes that food laws should not have for their object the raising of revenue. (15.)

DIGEST OF ADDITIONAL STATEMENTS CONCERNING BAKING POWDERS.

[PREPARED BY THE INDUSTRIAL COMMISSION IN PURSUANCE OF A RESOLUTION OF THE UNITED STATES SENATE ADOPTED JANUARY 6, 1901.]

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INTRODUCTION.

By a resolution of the United States Senate passed January 6, 1901, the Industrial Commission was called upon to prepare a digest of the testimony relative to alum baking powder contained in the following publications:

Hearings before the Committee on Agriculture and Forestry, United States Senate, April 23, 1900. Washington, Government Printing Office, 1900.

Memorial of the American Baking Powder Association in the matter of bill S. 3618. Senate Document No. 303, Fifty-sixth Congress, first session.

Some Interesting Information about Baking Powders. Published by the American Baking Powder Association, 1123 Broadway, New York.

Effects on Digestion of Food Prepared by the Use of Alum Baking Powder. By E. E. Smith, M. D., Ph. D. Reprint from the New York Medical Journal, October 27, 1900. Published by American Baking Powder Association, New York.

Extracts from a Letter of Mr. Stanley Stoner, a Lawyer of Recognized High Standing in St. Louis, Mo., Richmond Chamber of Commerce, Richmond, Va.

Two other pamphlets without titles, published by the Chamber of Commerce of Richmond, Va., and dated January 2, 1901.

These pamphlets contain much testimony as to the harmless character of alum baking powder, together with some statements tending to show that all baking powders, particularly those containing cream of tartar, are injurious. They also contain criticisms upon the advertising methods of the principal cream of tartar

baking powder company and its alleged efforts to influence legislation. The hearing of April 23, 1900, was devoted chiefly to protests from various persons interested in the manufacture of alum baking powder against the provision of Senate bill 3618, introduced March 15, 1900, authorizing the Secretary of Agriculture to fix standards of food products and determine the wholesomeness or unwholesomeness of preservatives and other substances added to foods, and making his determinations the standards before all United States courts. Dr. Wiley, chief chemist of the Department of Agriculture, defended the objects of the bill, but also approved an amendment suggested by one of the protestants making the findings of the Secretary only evidence instead of binding upon the courts. The section under discussion was in the following terms:

"SEC. 7. That it shall be the duty of the Secretary of Agriculture to fix standards of food products when advisable, and to determine the wholesomeness or unwholesomeness of preservatives and other substances which are or may be added to foods, and to aid him in reaching just decisions in such matters he is authorized to call upon the Director of the Bureau of Chemistry and the chairman of the committee on food standards of the Association of Official Agricultural Chemists, and such physicians, not less than five, as the President of the United States shall select, three of whom shall be from the Medical Departments of the Army, the Navy, and the Marine-Hospital Service, and not less than five experts, to be selected by the Secretary of Agriculture by reason of their attainments in physiological chemistry, hygiene, commerce, and manufactures, to consider jointly the standards of all food products (within the meaning of this act), and to study the effect of the preservatives and other substances added to food products on the health of the consumer; and when so determined and approved by the Secretary of Agriculture such standards shall guide the chemists of the Department of Agriculture in the performance of the duties imposed upon them by this act and shall remain the standards before all the United States courts. It shall be the duty of the Secretary of Agriculture, either directly or through the Director of the Bureau of Chemistry and the chairman of the committee on food standards of the Association of Official Agricultural Chemists and the medical officers and experts before mentioned, to confer with and consult, when so requested, the duly accredited representatives of all industries producing articles for which standards shall be established under the provisions of this act."

The suggested amendment provides that "when so determined and approved by the Secretary of Agriculture such standards and determinations shall guide the chemists of the Department of Agriculture in the performance of the duties imposed on them by this act, and may be used as evidence before all the United States courts."

I. COMMERCIAL ASPECTS OF THE BAKING-POWDER QUESTION.

A. Various acids used in baking powder.—Mr. HIGGINS, president of the American Baking Powder Association, says several acids are used to release the carbonic acid gas contained in the soda with which the acid is combined in baking powder—alum, cream of tartar, a combination of alum and phosphate, and in one instance phosphate alone. The success of the only concern which uses phosphates alone is not yet known. Hitherto it has never been practicable to use phosphates as the exclusive agent. A great many manufacturers who use alum use acid phosphate also. (Senate committee, 29.)

B. Relative economy of alum baking powder.—Mr. E. L. DUDLEY, of Dudley & Company, Fairport, New York, states that this is a small manufacturing company which has for 5 years been making baking powder with alum in it, which it considers a healthful product. He himself travels on the road, and knows from dealing with the people of New York State that the majority of the people favor the lower-priced goods and buy them. A great many alum baking powders are put up on a 1-spoon formula; the directions call for 1 spoonful to a quart of flour. Some alum baking powders are put up on a 2-spoon formula, calling for 2 spoonfuls to a quart of flour. All cream of tartar baking powders are put up on a 2-spoon formula, because cream of tartar is an extremely weak acid.

In the portions of the country where the consumption of baking powder is largest per capita, as in his own State and the section south of Maryland, 1-spoon baking powder is universally used, with the result that the humble negro or poorest white man has a cheap and efficient material with which to leaven his bread. He buys a 1-pound can of baking powder for 10 cents. For Royal Baking Powder or any other 2-spoon cream of tartar baking powder he would have to pay 50 cents a pound; in some instances 40 or 45 cents, never less than 40 cents except when there is a trade war between retail grocers. The directions on the outside require 2 spoonfuls to a quart of flour, but the directions on a slip inside the can require 3 spoonfuls to a quart of flour. Taking the quantity prescribed on the outside label it requires \$1 worth of that powder to go as far as 10 cents' worth of the alum baking powder. Taking the quantity prescribed inside the can it requires \$1.50 worth, or 15 to 1. This is what has gradually injured the business of the Royal Baking Powder Company. (Senate committee, 30, 31.)

The memorial of the American Baking Powder Association asserts that the cost of leavening bread with Royal Baking Powder equals 80 per cent of the cost of the flour, while the cost of leavening bread with alum baking powder equals 8 per cent of the cost of the flour. These estimates are based upon the assertions that, first, the leavening power of 1 pound of alum baking powder is equal to the leavening power of 2 and in some cases of 3 pounds of cream of tartar baking powder, and, second, that the price of alum baking powder to the consumer is 10 cents a pound and the cost of cream of tartar baking powder is 50 cents a pound. (Memorial, pp. 4, 5.)

Mr. A. C. MORRISON, secretary and treasurer of the American Baking Powder Association, says that the price of alum baking powder is 10 cents a pound, never above 25 cents a pound, and that of cream of tartar baking powder is between 45 and 50 cents a pound. The cheapness of the alum product has made it a strong competitor, and while the alum baking-powder business has been growing enormously, the cream of tartar interest has been retrograding. (Senate committee, 15, 16.)

The Richmond Chamber of Commerce declares that the prohibition of the use of alum in baking powder would destroy 525 manufacturing plants in the United States. Moreover, it would immensely increase the cost of baking powder to the public. It is estimated that the State of Virginia alone would have to pay \$4,500,000 yearly for baking powder as compared with the present expenditure of \$300,000, and that for the United States the cost of cream of tartar baking powder would be \$150,000,000 yearly as against \$10,000,000 for alum baking powders. (Pamphlet issued by Chamber of Commerce.)

C. Number of manufacturers and amounts produced.—The memorial of the American Baking Powder Association says that the manufacture of cream of tartar baking powder began about 35 years ago, that of alum baking powder about 25 years ago, and that of phosphate powders later. There are 524 manufacturers of alum and alum phosphate powders. There are only 8 or 10 manufacturers of cream of tartar baking powders, and 3 of them are in a combination known as the Royal Baking Powder Company. This company puts out considerably over 90 per cent of the whole product of cream of tartar powder. It controls virtually all the cream of tartar manufactured in this country. Straight phosphate baking powder is made by only one firm. About 100,000,000 pounds of alum and alum phosphate powders are sold yearly in the United States, about 18,000,000 pounds of cream of tartar baking powder, and not more than 500,000 or 600,000 pounds of phosphate powder. (Memorial, pp. 3, 4, 10.)

Mr. DUNCAN EDWARDS says the alum baking powder companies of the United States produce more than 100,000,000 pounds annually, against about 18,000,000 pounds of cream of tartar powder. (Senate committee, 7.)

Mr. JAKES estimates that about 20,000,000 pounds of cream of tartar baking powder are manufactured in the United States, of which 18,000,000 pounds, on a conservative estimate, are manufactured by the Royal Baking Powder Company and associated companies. The manufacture of powder containing alum amounts to about 100,000,000 pounds, of which the American Baking Powder Association represents about 75,000,000 pounds. The 61 members of the association include the large manufacturers; the other 450 or so are manufacturers who make the baking powder as a side line. (Senate committee, 27.)

Mr. HIGGINS and Mr. STEELE estimate that the Royal Baking Powder Company manufactures 90 per cent of the cream of tartar baking powder of this country. (Senate committee, 5, 32.)

Mr. COYNE estimates that the ratio of use of alum and cream of tartar baking powders is about 8 to 1. (Senate committee, 26.)

Mr. DAVIS states that the manufacturers of alum baking powder and alum phosphate baking powder produce fully 80 per cent of the baking powder consumed in

the United States, and the manufacturers of cream of tartar baking powder perhaps 20 per cent. The powders containing alum go to the consumer at such low prices and are so much more economical and efficient that they are in the ascendant. There were originally three cream of tartar baking powder companies—Price, Cleveland, and Royal—who built up a business of such immense proportions and such immense earnings on a small capitalization that they were consolidated, bringing in also the companies producing or refining cream of tartar, and the aggregated corporations were capitalized at \$20,000,000, \$10,000,000 preferred stock, and \$10,000,000 common stock. To pay a dividend on that stock requires about \$600,000. The alum baking powder companies do not make \$300,000 net in a year, though they supply 80 per cent of the consumption. The law of competition has worked among them so efficiently that most of them are working for the benefit of the consumer. The Royal Baking Powder Company is the only concern that does any business that amounts to anything at all in opposition to alum. (Senate committee, 25, 26.)

Hon. LEVI WELLS, State dairy and pure-food commissioner of Pennsylvania, estimates that from 60,000,000 to 100,000,000 pounds of baking powder are consumed annually in the United States, and that if the cream of tartar baking-powder people had the entire trade of the country their profits would not be less than \$20,000,000 annually. (Memorial, p. 30.)

Mr. HIGGINS says the Royal Baking Powder Company has found its business gradually dissipating, the fierce competition of the alum baking powders with their lower prices gradually taking the trade away. It asks the protection of the Government to perpetuate a condition which will enable it to increase its profits. (Senate committee, 29.)

D. Advertising methods of the Royal Baking Powder Company, and its efforts to influence legislation.—Mr. STEELE testifies that sulphate of alumina enters into the manufacture of the baking powder used by 50,000,000 people in this country. The forces at work against this industry are stupendous, sufficient to spend more than \$1,000,000 a year for a series of years in advertisements, to compel consideration of a bill to suppress the industry in every legislature in the country, and to induce one United States Senator to recommend that the industry be suppressed. The bill was passed in but one State, Missouri, where it was passed without any hearing. (Senate committee, 5.)

Mr. DUNCAN EDWARDS, in a statement on behalf of the American Baking Powder Association, says there is a great contest between the cream of tartar powders, represented by the Royal Baking Powder Company, a trust, and the various alum powders. The cream of tartar baking-powder companies, by advertising and by a skillful use of scientific testimony, really directed not against the use of alum in baking powders, but against its use as food, have created a sentiment against the use of alum in baking powders. They have done this for business purposes, in order to keep up their prices by making it appear that the use of alum is harmful and should be prohibited. (Senate Committee, 7, 8.)

Hon. LEVI WELLS says the cream of tartar baking-powder people, through skillful advertising and a vast amount of deceptive literature circulated through the press, have led the public to believe that only their powders are safe to use. (Memorial, 30.)

Mr. DUDLEY says the Royal Baking Powder Company is the only baking-powder concern whose methods are such and whose profits are so large that it can use advertising space extensively. It makes contracts almost universally with the papers inserting its advertisements that no advertisement shall be inserted in reply. The Senate Committee on Manufactures recommended that the alum baking-powder companies should be completely legislated out of business on the testimony of two chemists in the employ of the Royal Baking Powder Company. The committee took a large amount of evidence which was purely fictitious, gotten up in the interest of one great baking-powder concern. Mr. Dudley admits that some of the chemists of the alum baking-powder companies also volunteered to go before the committee. He says that the commercial aspect of using Senator Mason's committee appealed immediately to the Royal Baking Powder Company. When the committee assembled in Chicago the company instructed distributing crews to go through Illinois and other States and represent that they were under the pure-food commission of which Senator Mason was chairman and not employed by a baking-powder company. They were instructed to tell the housekeepers on whom they called that alum baking powder was injurious, that Senator Mason's committee had condemned it, and that the desirable and pure baking powders were Cleveland's, Royal, and Price's. All this was done secretly. (Senate Committee, 31, 32.)

Mr. CHARLES LATCHEM, of Wabash, Ind., says the Royal people had been using in the Wabash paper a single-column 8-inch advertisement. When his firm got

pretty well started in the manufacture of baking powder, the Royal Baking Powder Company published a double-column 8-inch advertisement, complaining against his goods, without any signature. Mr. Latchem then went to the newspaper office and wanted to advertise, but was politely told that they could not accept an advertisement; that they were bound by contract not to accept any other advertisement from a baking-powder manufacturer. The Royal Baking Powder Company does not spend a dollar in Indiana, except for one representative, while Mr. Latchem's firm employs 40 people, including 5 men on the road. (Senate committee, 29, 30.)

Mr. THOMPSON thinks the Royal Baking Powder Company has done everything it can, fair or unfair, to down its competitors. It pays so much for advertisements and reading matter that it has practically a subsidized press. It publishes not only ordinary advertisements, but reading matter without any signature, for which double rates are paid, and which delude the public into thinking that the newspaper is working for the benefit of the public health. The company also has written letters to ladies who have been using Mr. Thompson's baking powder, stating that it was an alum baking powder. Mr. Thompson says his baking powder is an acid phosphate baking powder, but of course has alum in it. (Senate Committee, 28, 29.)

The Richmond Chamber of Commerce expresses the opinion that one of the chief sources of prejudice against alum baking powder is the system of "blind advertising" inaugurated years ago by the Royal Baking Powder Company, by which articles attacking alum baking powder are published as news matter, appearing as the unbiased opinions of the newspaper, while they are in fact paid advertisements. In this connection was submitted the facsimile of a proposed contract between the Royal Baking Powder Company and the Journal-Tribune, of Knoxville, Tenn., providing that articles to be furnished by the Royal Baking Powder Company should be published "as pure straight reading—set in the same size and style of type and with the same style of heading as the pure reading adjoining—to be surrounded by pure reading and without date, mark, or anything to designate them as paid matter." The Chamber of Commerce states that newspapers are beginning to refuse to make such contracts. (Pamphlet issued by Chamber of Commerce.)

The memorial of the American Baking Powder Association declares that the Royal Baking Powder Company, in its efforts to increase its business, has resorted to "gradual and persistent deception of the public by false and libelous statements, covertly inserted as reading matter in newspapers, declaring alum baking powder to be poisonous, detrimental to health, and a wholly unworthy product, and the utilization of the public prejudice which is created by its own false statements to enact legislation prohibiting the manufacture and sale of alum baking powders."

It is also asserted that this company inserts clauses in its advertising contracts which prevent papers that have its advertisements from inserting any matter contradictory to its statements or detrimental to its interests. It is asserted that these contracts provide for the publication of pure reading matter.

In illustration of the Royal Baking Powder's advertising methods, the memorial presents the following, which is said to represent a type of advertisement that is widely distributed:

[From the Commercial-Appeal, Memphis, Tenn., January 2, 1900.]

SAID TO BE ALUM POISONING—SERIOUS CASE OF ILLNESS REPORTED FROM THE USE OF IMPURE BAKING POWDER.

[Johnstown, Pa., Tribune.]

The poisoning of the Thomas family, of Thomas Mill, Somerset County, four members of which were reported to have been made dangerously ill by impure baking powder used in making buck-wheat cakes, has been further investigated.

The original can, with the remainder of the baking powder left over after mixing the cakes, was secured by Dr. Critchfield. The powder had been bought at a neighboring country store, and was one of the low-priced brands.

Dr. Critchfield said that the patients had the symptoms of alum poisoning. As the same kind of baking powder is sold in many city groceries as well as country stores, Dr. Critchfield thought it important that a chemical examination should be made to determine its ingredients. He therefore transferred the package of powder to Dr. Schill, of this city, for analysis. Dr. Schill's report is as follows:

"I certify that I have examined chemically the sample of * * * baking powder forwarded to me by Dr. Critchfield. The specimen contained alum.

"Dr. FRANCIS SCHILL, Jr., Analyst."

Alum is used in the manufacture of the lower-priced baking powders. It is a mineral poison, and for this reason the sale of baking powders containing it is in many cities prohibited.

Several quotations from other papers are given in which this case of alleged poisoning by alum baking powder is referred to upon the authority of the Johnstown Tribune. All of them are alleged to be paid advertisements of the Royal Baking Powder Company.

The following affidavits are offered, together with others of similar nature, in proof of the falsity of the statements made in these advertisements and of the deliberate manufacture of false statements and the procurement of their publication by the agents of the Royal Baking Powder Company:

Personally appeared before me J. B. Critchfield, who deposes and says as follows:

That I am the doctor who attended the Thomas family who were poisoned some time ago.

The statements and advertisements of the Royal Baking Powder Company that I stated that they (the Thomas family) were poisoned by alum in baking powder is false. I never made any such statement. Mr. La Fetra, the agent of the Royal Baking Powder Company, called on me and asked me if I would state that the poisoning was alum poisoning, and I told him I would not.

They have in their advertisement misquoted me and have made false statements in regard to the matter, as the symptoms were arsenical poisoning and not alum.

J. B. CRITCHFIELD.

APRIL 20, 1900.

Personally appeared before me Francis Schill, jr., who, being duly sworn, deposes and says:

I, Dr. F. Schill, jr., am the physician who examined the baking powder brought to me from Dr. Critchfield by Mr. La Fetra, of the Royal Baking Powder Company, which was said to have caused the poisoning of the Thomas family. At his request I examined it for alum only, which I found it contained. He wished me to sign a statement that in my estimation alum baking powders caused symptoms such as obtained in the Thomas family. This I refused to do. He wished all mention of his name or his companies to be excluded from my statement. Not by direct implication, but by innuendo, they have placed me in a false position, leading the public to infer that I went on record as saying such alum baking powders were injurious to health and had caused the poisoning of the Thomas family. This latter I emphatically deny.

DR. FRANCIS SCHILL, JR.

Subscribed and sworn to before me this 20th day of April, 1900.

[SEAL.]

EDW. E. LEVERGOOD,

Alderman, City of Johnstown, Cambria County, Pa.

The memorial also states that Dr. Critchfield and Dr. Schill tried to have a true statement of the facts inserted in the newspapers of Johnstown, "and the papers refused to publish the same, stating that on account of a contract they had with the Royal Baking Powder Company they could publish nothing of this character for them."

Among other alleged advertisements, one is taken from the Syracuse Post-Standard of March 24, 1900, of which the following is a paragraph:

"The Johnstown, Pa., Tribune reports four cases of poisoning near that city from the use of a baking powder which, when analyzed, was found to contain alum. Recently in New York two deaths occurred from poisoning by the use of powders sent to victims in samples."

Upon this the Memorial makes the following comment:

"The only two deaths from poisoning by powder to which this sentence applies are apparently those of Barnett and Mrs. Adams, for which Molineux was convicted. The powders alleged to have been used were kutnow and bromo seltzer. These, of course, are not baking powders."

A considerable number of other examples of matter alleged to have been published in various newspapers as reading matter, by procurement of the Royal Baking Powder Company, are given.

The Memorial also alludes to a house-to-house campaign against alum baking powders, which the Royal Company is said to have inaugurated. A quotation is made from the Daily Democrat, of Sherman, Tex., dated September 25, 1899, in which it is said that "M. Wemple, of New York City, representative of the National Pure Food Association," with eight women assistants, was in Sherman for the purpose of inspecting baking powders used in Sherman homes. Mr. Wemple is quoted as having made the following statement to a Democrat reporter:

"The ladies will call at every house in Sherman, and, with the consent of the lady of the house, will inspect the baking powder used and show which powders contain alum and which are made of cream of tartar. We represent no baking-powder firm nor do we use or recommend the use of any particular brand of powder. We simply desire to demonstrate which powders are pure and which are not."

Affidavits of women are also presented, stating that they have been engaged in this work. One swears that she was employed by "the Pure Food Association of Iowa, or the National Pure Food Association, under the supervision of Senator Mason, of Chicago." Three others, signing one affidavit, say: "Mr. Mark Wemple instructed us to use the name of Senator William E. Mason in connection with the 'Pure Food Commission,' in order to enable us to gain admission to houses while employed by the Royal Baking Powder Company, to condemn the use of all other baking powders."

Mr. WILLIAM T. BIGGS states in an affidavit that he was employed by the Royal Baking Powder Company at \$100 a month as "manager of a demonstrating crew." He was instructed to report to Mr. Mark Wemple. Mr. Wemple told him "that they did not wish the public to know that the Royal Baking Powder Company was doing this work, on account of the prejudice against trusts, and that in order to gain admittance to houses we were to have our demonstrators tell the housekeeper that 'We are not representing any particular brand of baking powder, but are working under the auspices of the National Pure Food Commission, of which Senator William E. Mason is chairman.'"

Another phase of the activity of the Royal Baking Powder Company is asserted in the Memorial to be procurement of legislation against alum baking powders. A bill was passed in Missouri prohibiting the manufacture or sale of any article that contains alum and is to be used in the preparation of food. The passage of this bill is referred to as clandestine, and it is said that none of the 31 manufacturers of alum baking powders in Missouri was given notice of any hearing, or knew of its passage until they had been legislated out of business. Similar bills were introduced in Georgia, Virginia, Mississippi, New Jersey, and New York, but were defeated as soon their character became known.

Under the Missouri law a case was brought against a dealer, and it is asserted by the Memorial that each of the 10 witnesses for the prosecution testified that he appeared at the request of the Royal Baking Powder Company and that he was paid for his appearance; at least two of them at \$100 a day and expenses, and at least one at \$50 a day and expenses. The case for the prosecution, though nominally conducted by the State, was really conducted by an able attorney of St. Louis, in the employ and pay of the Royal Baking Powder Company. "At this trial the astonishing fact was also elicited that the article on the physiological effects of hydrate of alumina, published in the Chemical News, of London, by Professor Mallet, and which has been supposed to be in every way an independent, disinterested, and purely scientific piece of work, had been undertaken at the suggestion of Mr. Hoagland, of the Royal Baking Powder Company, and paid for by that company." (Memorial, 5-23, 43-45.)

The Richmond Chamber of Commerce publishes two letters from lawyers of St. Louis, Stanley Stoner and James A. Seddon, both of whom were engaged in defending the suits brought to enforce the Missouri law against alum baking powders. These letters declare that the law referred to was passed hastily, and without opportunity for opposition by the alum baking powder interests. The bill was introduced and carried by a lobbyist. It associated alum with arsenic, calomel, and bismuth, none of which was ever used in the preparation of food. As first introduced the bill included a prohibition upon the use of potash, but this was struck out in the privacy of the senate committee and ammonia was substituted, the evident reason being that cream of tartar contains potash.

The alum baking powder companies arranged to have a test case brought under the law. It was found that the Royal Baking Powder Company employed attorneys to prosecute the case, and that the State was represented, not by its own officers, but by these attorneys. It was further developed that all of the 11 expert witnesses who testified against alum baking powder were paid at the rate of from \$50 to \$100 per day and expenses by the Royal Baking Powder Company, as they admitted on cross-examination. Two of them admitted also that they were paid when they testified before the senate committee on manufactures.

Much evidence was submitted to show that alum baking powder was harmless, and the judge declared in his opinion his belief that it was harmless, but nevertheless felt that under previous decisions of the supreme court of the State the judiciary had no right to interfere with the discretion of the legislative branch of the government, and must accordingly enforce the law. An appeal was taken from this decision to the supreme court, which had not yet been decided at the time of this correspondence. (Letters published by Richmond Chamber of Commerce.)

Mr. MORRISON states that the cream of tartar baking powder people succeeded in passing a law in Missouri which would throw 31 alum factories out of business. The bill was passed without the knowledge of the alum baking powder manufacturers. Since that time every legislature which has met has had the bill presented to it, but the American Baking Powder Association has always shown its purpose, and has in every case been successful in defeating it. In the Virginia pure food law a provision was inserted that alum baking powder should be excluded from the operation of the law. (Senate committee, 16.)

Mr. UDELL says the animus behind every bill introduced into State legislatures, so far as he knows, has been to strike down industries not controlled by the Baking Powder Trust. (Senate committee, 12.)

The Memorial of the American Baking Powder Association says: "Professor Prescott stated, under oath, in *The State of Missouri v. Whitney Layton*, that he was asked to testify before Senator Mason's committee by Dr. McMurtrie, chemist of the Royal Baking Powder Company, and he could not afford to leave his duties unless he received his compensation of \$100 a day and expenses. Senator Mason, however, states (p. 195) that he sent for Professor Prescott because he heard that he was in the city. He also admitted that for appearing as an expert witness for the prosecution in *The State of Missouri v. Whitney Layton* he was paid \$100 a day and expenses by the Royal Baking Powder Company. And further, that he had not himself made any experiments or conducted any experimental work on bread made with alum baking powder."

"Prof. Victor C. Vaughan, who testified before Senator Mason's Pure Food Committee, also stated, under oath, in *The State of Missouri v. Whitney Layton*, he was told by Professor Prescott that Dr. McMurtrie (chemist of the Royal Baking Powder Company) wanted him to testify before that committee, and that his compensation (\$100 a day) and expenses were paid in the same manner as Professor Prescott's (i. e., by the Royal Baking Powder Company). Professor Vaughan also admitted that he received \$100 a day and expenses from the Royal Baking Powder Company for giving expert testimony for the prosecution in *The State of Missouri v. Whitney Layton*."

"Prof. J. W. Mallet (p. 549) testified at great length and introduces in full an article published in the *Chemical News*, of London. Professor Mallet admitted, under oath, in the Missouri case that a part of the work included in this article was done at the request of Mr. Hoagland, of the Royal Baking Powder Company, and paid for by him. He also stated that he was paid by the Royal Baking Powder Company for testifying on the side of the prosecution in the St. Louis case \$50 a day expenses and \$250 for special work. Professor Mallet also stated, under oath, before the Mason committee (p. 550) that in appearing before that committee he did not represent any manufacturer whatever. Professor Mallet swore in the St. Louis case that he had not done any experimental work on the physiological effects of alum baking powder residues since 1888, so that his testimony given before the Mason committee is practically a reiteration of the work paid for by Mr. Hoagland, of the Royal Baking Powder Company, and published in the *Chemical News*, of London. This article is printed in full in the Mason report (p. 557). No allusion, however, is made to the connection between this article and the Royal Baking Powder Company, which is natural enough, in view of Professor Mallet's statement that he did not represent any manufacturer, nor was he interested in the manufacture or sale of any baking powder." (Memorial, 43-46.)

The Richmond Chamber of Commerce, after its investigation of alum baking powder, declares its opinion that the conclusions of the Senate Committee on Manufactures as regards baking powder were based on ex parte testimony, chiefly delivered by chemists in the pay of the Royal Baking Powder Company, as proved by evidence before the courts of Missouri in *State of Missouri v. Layton*. The fact that Senator Mason stated on the floor of the Senate that he could recall no testimony showing that cream of tartar baking powder left Rochelle salts in bread is evidence, in the opinion of the chamber of commerce, that the investigation was one-sided, since this effect of alum baking powder is well known. Over against these conclusions the committee puts the opinion of Judge Clark in the above case, based upon a full hearing of both sides of the question, that alum baking powder is harmless. (Pamphlet issued by chamber of commerce.)

E. Alum baking powder not controlled by a trust.—Mr. A. C. MORRISON, secretary and treasurer of the American Baking Powder Association, says that this association was formed as a result of the attack on the alum baking powder industry, which awakened manufacturers to the necessity of uniting. The association is not formed for controlling prices or competition, but for defense against the attacks of a single well-equipped organization. It consists of 61 members, who manufacture 75,000,000 pounds of baking powder, or 75 per cent of all the alum baking powder sold. (Senate committee, 16.)

Mr. DAVIS states that the American Baking Powder Association represents 75 per cent of the output of alum and alum phosphate baking powders; that there is no combination in effect or contemplated as to prices, and that the association would not be in existence except for the aggressive and, as some of the members think, disreputable methods of their chief competitor in the cream of tartar baking powder business. (Senate committee, 26.)

Mr. J. J. HIGGINS, president of the American Baking Powder Association, confirms the statement that this association, which is composed of alum baking powder manufacturers, is organized not for the regulation of prices or of trade, but for defense against the aggressive attacks of an antagonistic interest. (Senate committee, 18.)

II. PHYSIOLOGICAL EFFECTS OF BAKING POWDERS.

A. Alum baking powder not injurious.—The Memorial of the American Baking Powder Association presents a series of medical and scientific opinions to the effect that bread prepared with alum baking powder is an entirely wholesome food. Extracts are given from the testimony of Prof. Austin Flint and Dr. Ernest E. Smith in the Missouri baking-powder case. This testimony was based upon an elaborate series of experiments. Opinions of the character referred to are quoted from Dr. Charles B. Parker, professor of physiology in the medical department of the Western Reserve University, from Dr. J. B. Sawyer, professor in the medical department of the Western Reserve University, from Dr. Henry W. Rogers, professor of materia medica and therapeutics in the Western Reserve University, and from Dr. Tuckerman and Dr. J. R. Smith, of Cleveland.

The following sentence is quoted from the decision of the presiding judge in the Norfolk, England, baking-powder case: "After the evidence we have just heard, I do not think bread made from this baking powder becomes an article of food injurious to health."

Hon. Levi Wells, State dairy and pure-food commissioner of Pennsylvania, is quoted as saying: "I do not hesitate to express my belief that, so far as healthfulness is concerned, the cheaper alum and alum-phosphate powders are no more objectionable than are the cream of tartar powders."

From the annual report of the Pennsylvania department of agriculture, 1896, similar statements are quoted. This report says: "A careful study of the question leads to the conclusion that a properly compounded alum powder will perform all the desired requirements and is no more harmful than the powders costing four or five times as much."

From "a report of elaborate experiments on digestion" by Prof. R. Ogden Doremus, professor of chemistry and toxicology in the Bellevue Hospital Medical College, New York, and Prof. Charles A. Doremus, professor of chemistry and toxicology in the University of Buffalo (medical department) these statements are taken:

"Alum and hydrate of alumina produce scarcely any more retarding effect on the digestion than common salt, and by no means as great a retarding action as did the Rochelle salts (from a cream of tartar baking powder)."

"Further experiments on human subjects, by feeding large quantities of hydrate and phosphate of alumina at meal times, prove no ill effects. * * * All baking powders leave residues in the bread. * * *

"As to quantities, alum baking powder leaves the least. * * * Baking powders (cream of tartar) which leave residues of potash, according to a prevailing sentiment among medical men, are more objectionable, leaving a double tartrate of potash and soda or Rochelle salts. * * * One of the best physiological proofs that the residues of alum powders are not injurious is that many intelligent families, aware of the composition of these powders, have used them for many years without injurious effect. * * * Even the salt of alumina is in constant use as a domestic medicine; it is largely employed in the arts without toxic effect resulting, and the alum springs of Virginia, also of Europe, are favorite resorts for hygienic purposes."

The following is from an article in the Scientific American Supplement, No. 185, by Prof. G. E. Patrick, professor of chemistry in the University of Kansas, detailing a series of experiments which Professor Patrick had carried on during the preceding two months: "It seems to me established, as well by experiment as by reason, that a properly made alum baking powder, used in making bread or biscuits, is perfectly harmless to the human system. * * * In closing, allow me to say, in order to prevent all suspicion, that this investigation was undertaken for the sole purpose of finding out the facts in this matter—one of so great importance to us all; that no party or parties interested in the sale or manufacture of baking powder had any knowledge of the investigation, and that I have received no remuneration for it or for this article."

George Holland, M. D., is quoted as saying in the Pharmaceutical Record, April 1, 1887, that the experiments of Francis Sutton, one of the most skillful analysts of the day, in connection with the Norfolk, England, baking-powder case, and of Professor Patrick, "furnish positive proof that the very small amount of hydrate of alumina left in the bread by the use of alum baking-powder is not dissolved by the gastric juice in the stomach of living animals, and is, therefore, harmless."

An article by C. V. Petraeus in the Pharmaceutical Record of June 1, 1888, is quoted, as follows: "An alum baking powder does not deteriorate in a package like a cream of tartar powder—its keeping ability is far above the latter. * * *

Alum sets free the gas from bicarbonate of soda slowly and with greater regularity than cream of tartar, and therefore does much better and more effective work. * * * Alum baking powders * * * are the best, not only because a given quantity will raise more bread than the same quantity of cream of tartar baking powder, but because of the small quantity and innocent character of the residue they leave in the bread." (Memorial, pp. 29-32; these same quotations are mostly reproduced in the pamphlet, *Some Interesting Information about Baking Powders*, published by the American Baking Powder Association.)

The memorial also refers to the testimony taken in the Missouri alum baking powder case (*State v. Layton*), in which men who had worked in alum factories for 13, 16, and 20 years, respectively, grinding exsiccated alum, stated that their long and constant exposure to alum dust had done them no harm. Their appearance was perfectly healthy, and their records showed that for 2 or 3 years at a time they had not missed a day. Similar evidence was given by persons who worked in alum baking powder factories and who were in like manner constantly exposed to the dust of alum.

The judge before whom this case was tried used the following language in his decision:

"It was not proven in evidence that there were any instances in the use of alum baking powders which resulted in the leaving in the food product any free alum—that is, in its original form. Some experiments showed that alum in some form, whether in its original shape or as a compound, in combination with other substances, did exist in the resulting product. It is to be noted that in every instance the quantity of alum or alum compounds found by analysis in the resulting food products was extremely small and far below the limit fixed by experiment as being a quantity sufficient to produce appreciable effects upon the individual using the food product in any quantity, such as would be obtained in its use as food—such as would be obtained in practice.

"Upon cross-examination the experts testifying for the prosecution admitted that in all their experience and in all their reading and information that they possessed on the subject they had never themselves come in contact with, nor could they obtain, any information or any knowledge of any recorded instances in which functional disorders or disease or impairment of the digestion and general health had resulted to any human being from the use of alum baking powder as an ingredient in the preparation of food.

"In the mind of the court this fact, considering the enormous proportions to which the alum baking-powder industry has grown in this country and the length of time in which such baking powders have been in use, stands as a stone wall against the deductions of the most eminent scientists who presented their theories on the part of the prosecution. I am unable to find in the evidence in this case any just ground for a ruling that alum baking powders, of themselves, when used in the preparation of food, are in anywise less wholesome than any other variety of baking powders." (Memorial, 36, 37.)

The memorial of the American Baking Powder Association declares that there is never more alum used in alum baking powder than is necessary to release the gas; for alum is the expensive ingredient and a manufacturer would not naturally use more than is needed. (Memorial, 3.)

The letters (published by the Richmond Chamber of Commerce) from Mr. STONER and Mr. SEDDON, attorneys for the defense in the case of *State v. Layton* brought to enforce the alum baking-powder law in Missouri, declare further that the defendant introduced many witnesses to show the healthfulness of alum baking powders. Among these were boarding house and hotel keepers who had used these baking powders for years, manufacturers and sellers who had made and sold them for years, and leading physicians who had used them in their families. The defendant also secured Dr. Austin Flint and Dr. E. E. Smith, of New York, to conduct a series of experiments (elsewhere described) as to the actual physiological results of the use of alum baking powder. Professor Keiser, of Washington University, St. Louis, also testified in the defense. These lawyers declare that the evidence of all these witnesses demonstrated beyond doubt that alum baking powders had been in use for many years, that fully 120,000,000 pounds are used yearly, and that they had proved entirely acceptable to consumers and were a standard article like sugar or flour.

It was further shown that no alum remains in the bread. No witness for the prosecution could testify that he ever heard of a single case of derangement of the human system attributed to the use of alum baking powder. The witnesses simply declared that alum was not a natural food product and that its injurious effects when taken in small doses would depend upon the question whether it was taken into circulation or was eliminated from the system, a question as to which they had conducted no experiments to determine the answer.

Dr. PETER T. AUSTEN stated before the Senate committee that the alum used in baking powder is a calcined or exsiccated alum, a white powder which is only partly soluble in water and has not the sharp astringent taste of ordinary alum. Bicarbonate of soda is mixed with exsiccated alum and a neutral filler, such as starch. In bread making carbonic-acid gas is set free gradually, and the bread is made porous and digestible. The baking powder is entirely decomposed, leaving a certain amount of sodium sulphate, which is a very common substance and a natural constituent of foods, and hydrate of alumina. Professor Smith and Dr. Flint concluded from their experiments that they could find absolutely no difference in physiological effect between bread made with alum baking powder and normal bread in which the residuum was only common salt. The people of this country use 100,000,000 pounds of alum baking powder a year, and ample investigation has failed to find any deleterious effect. Very eminent authorities are very strongly in favor of the use of alum baking powder, and state that they use it in their own families. There is no positive evidence against its use. (Senate committee, 13, 14.)

Dr. Austen, testifying before the judiciary committee of the Georgia legislature said, in addition to the above statements, that it is a mistake to suppose that alum used in baking powder remains in the bread as alum. Hydrate of alumina is believed by most recent authorities to be insoluble in the digestive juices and to pass from the body as inert matter. No proof has been adduced to show that either of these residual products of alum baking powder has any injurious effect. Dr. Austen declares that the inclusion of alum with arsenic and calomel, which are admitted to be poisonous, indicates ignorance or intention to mislead. There is no ground for considering alum as poisonous, although almost any article will produce death if taken in large enough quantities. Alum is often prescribed by physicians in doses of from 10 to 20 grains. Powdered alum is often blown into the throat for the treatment of relaxed membranes. No proof has been adduced by any experiment that the residual product of alum baking powder in bread produces harmful effects.

Dr. Austen quotes Dr. Sutton, public analyst for Norfolk (England) and other places, to the effect that all kinds of flour contain a small amount of alumina, so that it would be necessary in judging the effect of alum baking powder to determine how much of the alumina in the bread comes from the baking powder and how much from the flour. In Dr. Sutton's opinion alumina is not injurious to health.

The witness also quotes the following authorities to the effect that alum baking powder is not injurious to health, giving in most cases brief extracts from the language of the authorities: Dr. J. L. W. Thudicum, F. C. P., Lond., F. C. S.; Dr. Petraeus; A. Wynter Blythe; Dr. B. Ward Richardson, an eminent English sanitarian; Dr. Beverly, assistant surgeon to the Norfolk (England) and Norwich Hospital; Dr. C. M. Tidy, professor of chemistry and forensic medicine at the London Hospital; Professor Patrick, of the University of Kansas.

Dr. Austen also quotes from Dr. Henry Froehling, of Richmond, Va., who wrote in answer to a request from the commissioner of agriculture of Virginia, as follows: "From my experiments, carefully made, a well-compounded baking powder with alum as an ingredient, in the recognized proportions, is as harmless as the best cream-of-tartar powder; indeed it is less harmful, as the cream-of-tartar powder leaves in the bread a large residue of tartrate of potash and soda (Rochelle salts). I find that well-compounded baking powder, with alum as an ingredient, gives a leavening effect fully equal to the high-priced baking powders costing 4 or 5 times as much."

The witness also points out that alum is regularly used in Atlanta and other cities in Georgia for purifying the public water supply. The chemical reaction by which this process is accomplished is very similar to that taking place in bread raised with alum baking powder. The hydrate of alumina which is produced is removed by filtration and is not actually drunk. In the same way the alumina in the bread does not pass into the system at all. (Pamphlet entitled "Some interesting information about baking powders," pp. 1-8.)

The Richmond Chamber of Commerce not only cites testimony elsewhere digested in this report, but also local testimony. Thus, Dr. Hunter McGuire, who is said to have stood in the foremost rank of his profession, declared his full concurrence in the opinion that there is nothing injurious in alum baking powder, adding that he permitted its use in his own house and in his hospital. Fifty-one physicians of Richmond also testified that in all their experience they had never had a patient whose diseased condition of the digestive system could be attributed wholly or in part to the use of alum baking powder in food, and that they never knew a case of functional disorder as a result of the use of such powder. This statement is made in the face of the fact that fully 98 per cent of the baking powder used in Richmond is alum baking powder. The Chamber of Commerce

also points out that there has been a remarkable decrease in the death rate of Richmond during the last 8 years, concurrently with the enormous increase in the consumption of alum baking powders, and that there has also been a marked decrease in the death rate of the United States.

It is added, further, that the daily habits of the people afford the safest test of healthfulness. The people who from day to day perform practical physiological experiments without preconceived notions of the results afford evidence more satisfactory than the opinions of chemists. The result of this test is a vindication of alum baking powders. (Pamphlet issued by Chamber of Commerce.)

Mr. EDWARDS refers to the practical experience of millions of people who are daily using alum baking powder without evil effects, and also to a series of physiological experiments conducted for the Missouri case, and to be further extended, which he predicts will show conclusively that alum in baking powder is absolutely harmless. He explains that the alum is used merely to release the gas, and says no alum is left in the food, the residuum being hydrate of alumina, which is harmless. (Senate committee, 8.)

Mr. JOHN DAVIS, president of the Detroit Chemical Works, states that he began in 1868 with the manufacture of cream of tartar baking powder, but with a view to economy turned to baking powder containing alum. After his business was destroyed by an explosion he continued only the manufacture of the acid chemicals used. He has studied the subject, and resolved to produce nothing that would be injurious. He has used alum baking powder in his own family for 25 years. He says the only denial of the healthfulness of alum baking powder comes from the Royal Baking Powder Company or its employed men, who receive a money value for their testimony, and from cranks. (Senate committee, 19, 20.)

Hon. R. W. TAYLER, member of Congress from Ohio, states that he has constituents who manufacture alum baking powder at Canton, Ohio, and have been doing so for a great many years. They are ready, if necessary, to present cumulative evidence that their product is pure and innocuous, a promoter of health rather than a menace to it. (Senate committee, 17.)

Mr. HOOPER COYNE, manager of the Sea-Gull Specialty Company of Baltimore, Md., says that this company, which is in no way connected with any trust, manufactures an alum baking powder which has been analyzed and indorsed by the State chemist and by the chemist of the city health department. Mr. Coyne has been engaged in the sale and manufacture of alum baking powder for 19 years; he has been eating biscuits made from alum baking powder about that length of time, and his health is very good. (Senate committee, 26.)

Mr. R. B. DAVIS says he produces annually up into the millions of pounds of baking powder in which there is a small proportion of alum. He formerly manufactured cream of tartar baking powder, but caused physiological examinations to be made of the alum product, and began the manufacture of alum baking powder purely on physiological grounds. (Senate committee, 24.)

Mr. F. J. ACH, of Dayton, Ohio, states that he has for more than 20 years been engaged in the manufacture of alum baking powder, and during all that time has used no other baking powder in his own household but the product he manufactures, containing alum as its principal constituent. During that time he has developed from a rather dyspeptically inclined stripling to a perfectly healthy state, and has reared a family which has never encountered anything more serious than the measles or the mumps. The young women in his employ have never shown any symptoms of ill health beyond a normal amount, though they necessarily inhale more or less of the dust of the powder in the process of canning and labeling. About half a dozen have been employed more than 10 years, and one for 20 years. He has done business under the administration of three State food commissioners, and has conformed exactly to the regulations of Ohio. The question has come up a number of times, and he has always been able to demonstrate the harmlessness of his baking powder. (Senate committee, 23, 24.)

Dr. W. B. D. PENNIMAN, chemist of the Maryland State board of health, states that under the law of Maryland he can be called upon by any physician to investigate any matter which he thinks affects the health of his patients, and it is also his duty to look into any case of suspected poisoning; but he has never had a case of suspected poisoning where he found any harm in the baking powder, or in which a physician thought that baking powder was the possible cause of sickness, although hundreds of cases have been brought before him. He has examined many samples of baking powders and their constituents, and has never seen a sample containing any ingredient which is recognized as a poison. Dr. Penniman says there is no evidence to show that any individual was ever injured by either alum or tartrate baking powder, but what little evidence there is would seem to show that the Rochelle salts formed by cream of tartar powders have a more active medicinal effect than the hydroxide left by the alum. There is no excess

of alum in ordinary baking powder over the amount which will combine with the sodium bicarbonate, because it costs more than any other single ingredient of the powder. (Senate committee, 20-22.)

Mr. STEELE says there is no epidemic prevailing among the consumers of alum baking powders. He submits an extract from the decision of the court in a Missouri case, elsewhere quoted. (Senate committee, 5, 6. See also Udell, 12; Austen, 14.)

Mr. CHARLES E. JAKES, of Chicago, has been engaged for 12 or 15 years in the manufacture of alum baking powder, and has yet to hear of the first instance of any one being made sick by its use. (Senate committee, 27.)

Mr. F. E. UDELL states that the Provident Chemical Works of St. Louis have for more than 20 years manufactured powdered acid phosphate of calcium, which is used in combination with alum in the manufacture of baking powder. It can not be used alone, on account of its acting too quickly when combined with soda, and hence not keeping the requisite time. He says this acid phosphate is recognized as the most healthful acid that can be used in the compounding of foods. Some 300 or 400 manufacturers of baking powders in the United States are customers of his company. Mr. Udell believes it more healthful for use in baking powders than cream of tartar; he has used it in his own family for years. The hydrate of alumina occurs in bread in a quantity so infinitesimally small that even though a man were to eat a whole loaf of bread it could not possibly injure him. Professor Mallet testified that he had experimented upon himself, and that he took 20 grains of hydrate or hydroxide of alumina before there was any perceptible effect. In a whole loaf of bread there are only 12 grains. It was further brought out by the experts on both sides that in all the samples of bread made with alum baking powder there was not a particle of alum left in the bread. (Senate committee, 11-13.)

Mr. GEO. A. THOMPSON of Cincinnati says that he uses alum baking powder at home; that it is used in hospitals, physicians' families, in all kinds of private families, and in restaurants, and that no one has ever been injured by it. He himself makes his baking powder, so that he breathes it and is covered with it, and for 54 years he has never lost a day on account of illness. (Senate committee, 28.)

B. Physiological experiments of Dr. Smith and Professor Flint.—Dr. E. E. SMITH of New York, in the New York Medical Journal of October 27, 1900, publishes the results of certain experiments made by himself and Professor Austin Flint as to the effect of alum baking powder upon digestion. He says that opinions as to the effect of such baking powder are usually based upon the judgment as to whether the alumina into which the alum is converted is soluble or insoluble. The harmfulness is supposed to come from the solubility of the salts of alumina and its consequent absorption into the system.

The experiments referred to were made with bread leavened with alum baking powder, in comparison with bread made in precisely the same way but with bicarbonate of soda and hydrochloric acid for leavening. Two healthy men were given 60 grams of the alum baking-powder bread for breakfast, and 4 days later an equal quantity of the other bread. The contents of the stomach were examined in each case for acid and pepsin, with the following results:

	Baking-powder bread.	Control bread.
Subject I:	<i>Per cent.</i>	<i>Per cent.</i>
Total acidity, as HCl	0.251	0.233
Total hydrochloric acid	.215	.222
Combined hydrochloric acid	.143	.136
Free hydrochloric acid	.072	.086
Pepsin test	1 hour.	1½ hours.
Subject R:		
Total acidity, as HCl	0.220	0.221
Total hydrochloric acid	.215	.200
Free hydrochloric acid	.070	.069
Combined hydrochloric acid	.145	.131
Pepsin test	1½ hours.	1½ hours.

Dr. Smith thinks that these results are negative and the slight differences are rather the inevitable variation in all physiological experiments than the effects of the different methods of leavening the bread. He considers that the conditions of the experiment were fair. The limited amount of material available did not permit of a quantitative estimate of the amount of pepsin in the stomach.

A more elaborate experiment was conducted to ascertain the availability of the food elements of the two kinds of bread. A healthy man was given a diet consisting of bread made with alum baking powder, meat, milk, and butter. The bread constituted 64.6 per cent of the solids eaten. This diet was continued for 8 days. At a later time the same person was given precisely the same diet in quantity and quality, except that the bread was made as above indicated. The result of the experiment as determined by careful weighing of the constituents of the feces during the respective periods is as follows:

	Solids.	Protein.	Fat.	Carbohy- drates.
Feces, period 1.....	4.06	9.1	5.37	1.95
Feces, period 2.....	4.1	10.1	5.6	1.6
Diet available, period 1.....	95.9	90.9	94.63	98.05
Diet available, period 2.....	95.9	89.9	94.4	98.4

Dr. Smith concludes from these results as follows: "It is thus found that the availabilities of the diet in the two periods are practically identical, agreeing as closely, in fact, as can be expected of duplicate experiments on precisely the same diet."

The composition of the urine during the two periods was also determined, to indicate the amount of nitrogenous waste and the amount of the products of putrefaction formed by the intestines and absorbed. The results were so nearly the same as to indicate no greater degree of the putrefactive process in the one case than in the other.

"In conclusion, then, the evidence of these experiments is that food prepared by the use of a so-called alum baking powder does not interfere with secretion in the stomach, and, even when it makes up the major part of the diet, it is utilized by the body in the same way and to the same extent as an acceptable control diet. The investigation does not reveal any reason for believing such food at all injurious or unwholesome."

Referring to the experiments of Professor Flint, Professor P. T. Austen, and Dr. Smith, the memorial of the American Baking Powder Association says: "As these experiments are the only ones that have been conducted on human beings, in which the most modern means of investigation have been applied, they conclusively prove that the effect of hydrate of alumina is entirely negative, neutral, and that therefore bread made with alum baking powder, which leaves hydrate of alumina as the residue, is as wholesome and nutritious as the Liebig ideal bread."

C. Replies to witnesses against alum baking powder.—The memorial of the American Baking Powder Association presents an answer to each of the witnesses who testified against alum baking powder before the Senate Committee on Manufactures. Only a few of these answers are referred to separately in the following paragraphs. The memorial declares that there was a great amount of learned talk and a great amount of expression of opinion, but that no one knows of a specific case of injury to health by the use of food prepared with alum baking powders. It is also declared that the attempt is very adroitly made in some of the questions and answers to apply to food made with alum baking powder the information given about alum. It is pointed out that eating alum and eating bread made with alum baking powder are entirely different and distinct matters. "In the former case one eats alum, and in the latter one doesn't."

It is suggested that Professor Prescott's remark about astringents and precipitants (page 85 of Digest) can be applied as well to other articles of food, such as coffee and tea (both of which contain tannin, the astringent par excellence), many fruits, nuts, wines, etc.

"Professor Vaughan testified that he had never conducted any experiments with bread cooked with alum baking powder, or eaten it, or fed it to others for the purpose of seeing what effect it would have upon the health and the digestion. He also swore that it would be impossible to tell what the effects of food prepared with alum baking powder would be upon persons of normal health, and that during 25 years of reading, practice, and experience he has never seen any ill effects traceable to the use of alum baking powder, and further that his opinion as to the deleterious effects of the use of alum baking powder was based upon theoretical propositions, and not upon cases that had come under his individual observation or which were recorded in books.

"This is another luminous example of the overwhelming mass of testimony antagonistic to the use of alum in baking powder which fills the Mason report. Professor Vaughan does not state that he has ever found unchanged alum in bread made with alum baking powder; he does not even claim that the amount of bread eaten at a single meal could possibly contain 5 grains of alum, or if it did that one could eat that amount of alum in 3 or 4 slices of bread without detecting the taste of alum, and hence rejecting the bread."

Of many other witnesses the memorial declares, in its criticisms of their individual testimony, that their statements are indefinite and are not based upon experimental knowledge or exact knowledge of any kind, and that they merely express opinions without indicating any basis for their opinions which would entitle them to serious weight. Attention is repeatedly called to the fact that witnesses who testified that alum baking powder is injurious were not questioned as to the physiological effects of cream of tartar baking powder. Even in the case of testimony based upon experiments, alleged omissions are pointed out which are declared to make the results inconclusive. For instance, the following comment is made upon the experiments of Professor Munroe (pp. 35, 36 of Digest).

"He believes that hydrate of alumina will exert a harmful effect. He has, however, made no experiments himself, and hence expresses only an opinion. Later on Professor Munroe made bread with alum baking powder, extracted the bread with dilute hydrochloric acid, dialyzed the liquid and found compounds of aluminum in the dialyzates. As he did not make a blank test with the flour alone and did not determine the amounts of soluble salts of alumina present his experiments are not positive, for the soluble salts of alumina which he found may have come from the flour and not from the baking powder. It is a well-known fact that many samples of flour contain alumina. His inference that because a substance goes into solution in a 0.2 per cent solution of hydrochloric acid it will dissolve in the juices of the stomach, and that the alumina so dissolved will pass into the blood by osmosis, require experimental demonstrations on living animals or human beings and can not be proved by inference. Professor Munroe's statements and experiments are inconclusive."

Regarding the experiments of Dr. Mott, which consisted of feeding dogs with "biscuits made with immense quantities of alum baking powder," the memorial says: "Without going into a criticism of Dr. Mott's work, it is sufficient to state it is entirely contradicted and overthrown by the investigations of Professors Smith and Flint."

Professor Mallet's work is declared to be practically valueless because it avoids the real question. "He ate hydrate of alumina prepared in the laboratory, and not in the condition in which it exists in bread made with alum baking powder. * * * He practically admits that the amount of hydrate of alumina in a loaf of bread had no effect upon him when taken at a single dose. His experiments were performed only on himself. He did not make, as he would doubtless have done had he been making an independent scientific investigation, a study of the effects on himself of the residue from cream of tartar baking powder. Perhaps Mr. Hoagland, of the Royal Baking Powder Company, had no interest in the sensations that Professor Mallet might have experienced * * * had he taken 50 grains of Rochelle salts several times a day."

The memorial also calls attention to the fact that Professor Mallet has not experimented since 1888, and declares that the manufacture of alum baking powders has been greatly improved since that time. The exsiccated soda alum now used in making alum baking powder was not perfected in 1888. Professor Mallet did not make any experiments to show that unchanged alum is left in bread made with alum baking powders. He did not undertake to show by experiment that food prepared with alum baking powder is unwholesome. His experiments, from which he infers that aluminum hydroxide impairs digestion, are contradicted by the experimental work of Professors Smith and Flint. (Memorial, 41-52.)

The memorial declares that the chairman of the Senate Committee on Manufactures failed to reply to a request on behalf of the American Baking Powder Association for a hearing before the committee, yet after this request was sent "testimony was taken or letters solicited and printed from 28 persons hostile to the use of alum in baking powder." The memorial also says:

"The committee states that for 12 months a most searching investigation has been made; and that its time were worse than wasted 'if it were not prepared to make specific recommendations, based upon the evidence which it has taken where such evidence is conclusive. Therefore, so far as the use of alum in the manufacture of a food product, such as baking powder, is concerned, the committee, in view of the overwhelming mass of evidence antagonistic to its use,

recommends that its use in food products and baking powders be prohibited by law.

"In answer to this it may be said that the committee did not make a searching examination of the baking-powder matter. Not a single one of the many opinions in favor of alum baking powder given by distinguished men at home and abroad are found in this report. The effect of Professor Austen's short statement was ludicrous in the extreme.

"From that point to the end of the report more and more space is given to the opponents of alum baking powder. Chemists who were known to be favorable to the cream of tartar powder were telegraphed for to come on at once and testify before the committee. Old reports of no value were resurrected from library dust bins and used to fill up the report, in some cases with the dates omitted, so as not to attract public attention to their antiquity. In fact, the exact experimental investigation made by Professors Flint and Smith being unanswerable, pages of mere opinions not based upon facts, experience, or experimental investigation were introduced, so as to form what might be called an "overwhelming mass of evidence," and thus delude those not familiar with chemical and physiological science into mistaking opinions for proofs. (Memorial, 39-41.)

D. The occurrence of aluminum compounds in nature.—The memorial of the American Baking Powder Association says:

"Advocates of cream of tartar baking powders state that salts of alumina are not found in plants or articles of food, but such statements are false. Kayser states that many wines contain alumina in solution, which has been dissolved during their manufacture. L'Hôte also finds this to be the case. He also proved that both red grapes and their stalks contain soluble salts of alumina. The occurrence of alumina compounds in flour is so common that Wanklyn advises analysts to allow for it. Parmentier finds alumina salts in many spring waters. Yoshida proves that alumina compounds exist in peas, beans, rye, wheat, barley, millet, and buckwheat. Mushrooms, lichens, fungi, and mosses often contain considerable amounts of salts of alumina. In one moss (*Lycopodium complanatum*) acetate of alumina occurs in such quantities that a lye made from the plant can be used directly as a mordant in dyeing. The mountain raspberry has been found to contain an unusual amount of alumina salts. Drs. Harrington and Kinnicutt find alumina in the ash of human and cow's milk."

It is further suggested that the opinion of some witnesses against alum baking powder, that the occurrence of any element or compound in vegetation is an indication of its suitability for food, is an opinion which would lead to unfortunate results if it were consistently applied. (Memorial, 32, 33, 47.)

E. Injurious effects of cream of tartar baking powder.—The memorial of the American Baking Powder Association quotes a statement made in Part 5 of Bulletin 13, "submitted to the Commissioner of Agriculture by Dr. H. W. Wiley, chief chemist of the division of chemistry," that a loaf of bread made with a tartrate powder contains an amount of salts more than equivalent to one Seidlitz powder. The memorial asserts that "eminent medical authorities claim that the continued use of small amounts of Rochelle salts is extremely harmful, and some, indeed, claim that the prevalence of Bright's disease is owing to the consumption of Rochelle salts in foods."

Dr. AUSTEN, testifying before the judiciary committee of the Georgia legislature, states that cream of tartar is made from argol, a substance deposited from grape juice during fermentation, termed chemically acid tartrate of potash. When mixed with bicarbonate of soda and a neutral substance it becomes baking powder. In making bread, a chemical action takes place which sets free carbonic-acid gas and leaves tartrate of potash and soda, ordinarily known as Rochelle salts. No argument based upon the healthful nature of cream of tartar as such applies as regards the effect of Rochelle salts, the sole residuum of the baking powder which remains in the bread. Rochelle salts were formerly used frequently as a medicine, but are now less approved because of their injurious effect on the kidneys and bowels. Thus in the bulletin on "Food and Adulterants," prepared by Dr. Wiley, of the United States Department of Agriculture, it is stated that the amount of cream of tartar baking powder used becomes in the bread the equivalent of nearly an equal weight of the active ingredient of Seidlitz powders, which powders are a strong purgative. The directions for the use of tartar baking powders often called for a quantity equivalent to two Seidlitz powders or more in a loaf of bread.

It is claimed by many authorities, as stated by Dr. Austen, that the presence of considerable quantities of Rochelle salts in food stuffs is harmful to digestion. The authorities quoted are Professor William Jage, Dr. James T. Nichols, Professor Von Fehling, and Dr. Witthaus, in their respective text-books. In addition

to these authorities the witness refers to the statement of numerous physicians in New York City and Brooklyn, in the issues of the New York World of July 8 and 26, 1888. (Memorial, 27; "Some Interesting Information." 1-12.)

The New York World of July 26, 1888, contained an article on this subject, with the head lines "Dynamite outdone. The dangerous combination of cream of tartar and soda." The article consisted chiefly of interviews by a reporter with well-known physicians. The writer concluded that these physicians generally "join in denouncing the much used Rochelle salts powders, which are to a great extent responsible for the kidney troubles and dyspepsia which afflict the American people." The authorities quoted in this article are as follows: Dr. David A. Gorton; Dr. E. H. Bartley, chief chemist of the Brooklyn board of health; Dr. Frank A. West, professor of materia medica in the Long Island college hospital; Dr. W. H. Farrington, the house physician at the Astor House; Dr. William H. Dustman; Dr. W. J. Purcell, of the New York board of health; Dr. Moreau Morris, of the New York board of health; Dr. J. T. Nagle, chief of the New York bureau of vital statistics; Dr. Phillip E. Donlin, ex-deputy coroner of New York, and Dr. Robert L. Dickinson.

The general agreement among these physicians was that Rochelle salts, which are the residuum left by the action of cream of tartar baking powders, are likely, if used regularly in moderate quantities, unduly to irritate the coating of the stomach and of the whole alimentary tract, acting as a laxative at first, but ultimately tending to cause constipation, and that less serious effects would be produced upon the kidneys.

The most detailed statement is that of Dr. E. H. Bartley, who says: "Whenever cream of tartar is used in the kitchen it is changed chemically and becomes Rochelle salts. Rochelle salts are a cathartic, a medicine which so irritates the stomach and intestines that nature sets up an inflammation and a sickness to expel it from the system. This expulsion takes the form of cramps, diarrhea, and dysentery. Besides this the salt produces indigestion, dyspepsia, and constipation. Whenever there is a tendency to kidney disorders it aggravates them, and in many of these instances aids in starting the latent disease. * * * Each baking powder of this class prescribes an ounce of powder to a quart of flour. When this is baked it makes a 2-pound loaf, which contains one-half of an ounce of Rochelle salts. Well-to-do people eat on an average half a pound of bread, and working men 2 pounds per diem. The former, therefore, take into their system a quarter of an ounce, and the latter an ounce of Rochelle salts every day. The former certainly injure themselves, while the latter are ruining their systems. This probably is a powerful factor in causing the great mortality in sickness among working people." * * *

Dr. Frank A. West, professor of materia medica in the Long Island College Hospital, says that when Rochelle salts are introduced into the system in food they have to be eliminated either through the bowels or kidneys, and this would produce a highly irritating effect if kept up for any time.

Dr. Farrington, house physician of the Astor House, says that a baking powder which produces Rochelle salts would cause irritation of the intestinal canal, which, after a time, would cause obstinate constipation. The daily use of Rochelle salts for a considerable time would be likely to result in chronic dyspepsia, and would certainly injure the tissues as well as the mucous membrane.

Dr. David A. Gorton says that the daily consumption of Rochelle salts in ordinary food would in time produce a very injurious effect on the coatings of the stomach and bowels and on the kidneys. It would produce serious chronic dyspepsia and chronic gastritis.

Dr. Moreau Morris, of the New York board of health, says that Rochelle salts should never be used except by a physician's advice. Its continued use induces a very unhealthy condition of the stomach, and especially of the bowels, and finally produces constipation of an aggravated type.

Dr. W. J. Purcell, of the New York board of health, says that physicians seldom if ever use Rochelle salts to-day for laxative purposes, because if used persistently they produce an irritation of the bowels which becomes chronic, and which almost invariably results in serious and chronic constipation.

Dr. Robert L. Dickinson says that the effect upon children would undoubtedly be far more serious than upon adults, but even upon an adult the effect would be to produce diarrhea, colic, and a very much disordered condition of the stomach and bowels. "It would unquestionably produce a chronic gastric catarrh, if not gastritis. It would also affect the kidneys by increasing the amount of solid matter to be excreted by them. According to Bartholow, the best authority we have, the continued use of alkalis would produce the effect of a heart poison by lowering the blood pressure, the temperature, and the action of the heart. Such effects

are often seen in patients who have been actively treated for acute rheumatism by this very remedy." (Memorial, 27, 33, 39; "Some Interesting Information," 14-17.)

F. All baking powders injurious.—Dr. WILEY, chief chemist of the Agricultural Department, is opposed to all baking powders of every description. He believes that the introduction of mineral matters of that kind into the food is injurious, even if one can not put his finger on a specific instance. What makes men grow old is the hardening of their arteries, due to a deposit of mineral matter; if the arteries can be kept elastic, one will live to a green old age. The reason so many men who live by their brains fall down at their desks is because the coatings of their arteries become encrusted. When a small artery in the brain becomes encrusted that is the end of one's activity. Physicians advise the avoidance of mineral matters as far as possible. (Senate Committee, 33, 34.)

In a quotation from an address by the Hon. LEVI WELLS, State dairy and pure-food commissioner of Pennsylvania, before the national meeting of dairy and food commissioners at Chicago, October, 1899, it is declared that all baking powders are somewhat objectionable because of the salts which they leave in the food; whether the residuum be Rochelle salts, as in the cream of tartar baking powders, or whether it be something else, the result of an alum or an alum-phosphate powder. (Memorial, 29, 30.)

PROPOSED LEGISLATION.

A. General principles.—Dr. PENNIMAN says baking powders must be put in a separate class; they are not taken directly as a food or medicine, and he recalls no other instance in which a chemical process is introduced into everyone's kitchen to effect a certain chemical result. The only question is: Does it accomplish that result with due regard to the health of the consumer? (Senate Committee, 21.)

Dr. WILEY believes that alum is injurious, but he does not intend to be the judge of another man's diet. He is opposed to prohibitive legislation, and asks simply that all substances used in food be plainly marked on the label, to let each man judge for himself. In reply to a question from Mr. Higgins, Dr. Wiley says he would approve a provision that in the case of baking powder the residuum left in the bread should be stated on the label. (Senate committee, 34, 35.)

The memorial of the American Baking Powder Association declares that manufacturers of alum baking powders do not oppose honest, fair pure-food legislation, and are not in favor of any kind of fraud or deception. They do object to any legislation which is intended to benefit a rival industry at the expense of theirs, and which is promoted by manufactured testimony and by the opinions of scientific men which are not supported by experiments or facts. (Memorial, p. 42.)

B. Action of State legislatures.—The Richmond Chamber of Commerce declares it to be a striking proof of the weakness of the complaint against alum baking powders that the States of Georgia, Virginia, Mississippi, New York, and New Jersey have all refused to pass bills restricting their use. These States made careful investigations, while the one State that accepted the measure, Missouri, made no such investigation. A bill, which was an exact copy of the act passed by the Missouri legislature in 1899, was introduced into the legislature of Virginia in 1900. The committee of the Virginia senate to which the bill was referred and the Chamber of Commerce of Richmond each made an investigation and reached the conclusion that the proposed measure was unjust in its restrictions on the use of alum baking powders. Among the reasons set forth for this conclusion in the pamphlet of the chamber of commerce are these: That abundant testimony has been given before various bodies and in various publications that alum baking powder is not injurious to health; that the death rate in Richmond is lower since alum baking powder has been used than before; that the report of the Mason committee contained only ex parte evidence on this subject, and that alum baking powder is much cheaper than cream of tartar baking powder.

The chamber of commerce lays especial stress on the fact that the Missouri act had been passed without due consideration, and that after an extended trial in a test case a Missouri judge expressed the conviction that alum baking powder was harmless. (Pamphlet issued by Richmond Chamber of Commerce.)

C. Senate bill 3618.—The memorial of the American Baking Powder Association calls attention to the fact that Senate bill 3618, introduced March 15, 1900, makes it the duty of the Secretary of Agriculture to fix standards of food and to determine the wholesomeness of substances added to foods; his decision to fix the standards which the United States court must recognize. These provisions would put the alum baking powder industry at the mercy of the Secretary of Agriculture, who, though a perfectly reliable official, the memorial says, may be affected by

misleading statements and by an unfounded prejudice against alum baking powders. It is unjust that a great industry should be placed at the mercy of any one individual without even a chance of recourse to the courts. (Memorial, pp. 1, 2.)

Mr. HIGGINS states that the American Baking Powder Association heartily approves of correct pure-food legislation, and is not hostile to the principles of Senate bill 3618, but considers that section 7 is unwise in its provisions and would unjustly injure the alum baking powder industry. The association desires the standards and wholesomeness of baking powder to be decided in the courts, and not by the Secretary of Agriculture. If section 7 be retained, the association asks that baking powders be excluded from its provisions and made the subject of a separate provision. (Senate committee, 18.)

Mr. S. H. STEELE, vice-president of the General Chemical Company, says he is in full sympathy with pure-food legislation, but questions whether Congress can fairly discharge its duty by delegating to one man or set of men absolute power to establish what is or is not wholesome, as in section 7 of Senate bill 3618. Mr. Steele considers that this would be an unconstitutional delegation of the law-making power, and suggests that the clause providing for forfeiture of deleterious substances is a deprivation of property without due process of law. Aside from constitutional considerations, Mr. Steele says that it is contrary to the spirit of fairness and justice that one man should be empowered to determine what is a crime. He suggests an amendment making the conclusions of the Secretary of Agriculture admissible as evidence, with whatever weight the jury and court may see fit to assign them, but not conclusive. (Senate committee, 3, 4.)

Mr. UDELL objects to section 7 on the ground that it is not made compulsory upon the Secretary of Agriculture to accept the opinion of the 12 experts provided for, but that it still rests absolutely with him to decide. He says this bill is a direct assault upon the business of his company. (Senate committee, 11, 13.)

Mr. THOMPSON says the American Baking Powder Association does not object to pure-food legislation for the benefit of the public health, but does object to being subjected to a few men who may have a theory, and, acting upon that theory, may destroy the alum baking powder business. The association desires a chance in the courts to have full testimony on both sides. (Senate committee, 28.)

Mr. EDWARDS also objects to the provision of Senate bill 3618 giving the Secretary of Agriculture power to declare whether alum baking powder is wholesome or not. Declaring it unwholesome, he says, would mean the irretrievable ruin of all the alum baking powder companies. Mr. Edwards considers the mode of selecting the commission of experts provided by the bill to be too vague. He asks that section 7 be stricken from the bill, or that baking powders be excepted. (Senate committee, 8-10.)

Mr. CHARLES E. JAKES, of Chicago, a manufacturer of alum baking powder, says he is in favor of pure-food legislation, but sees the product he manufactures endangered by Senate bill 3618, particularly by section 7, because there is a prejudice throughout the country, created by advertising, against baking powders containing alum. On account of that prejudice he is very much opposed to leaving his future business career in the hands of a commission. The manufacturers have the right to go into court to state their case, and carry it up to the final court of appeals if necessary. (Senate committee, 27.)

Mr. COYNE asks that the inalienable right to earn an honest living be preserved, and that the courts and right of trial by jury remain open to the manufacturers of alum baking powder. (Senate committee, 26.)

Mr. DAVIS does not wish any commission or set of men to destroy his business because it is their opinion he is wrong. He objects to the Secretary of Agriculture having charge of the matter, because there is a prejudice built up in the public mind, which it is impossible to eradicate, that alum is unhealthful. He thinks a chemist is incapable of deciding; it is necessary to have physiologists who understand the channels of digestion. He believes it is incumbent on the United States Government to make a physiological examination of the materials available for baking powder. Mr. Davis says there are men in the South who manufacture baking powder containing 17 per cent of carbonic-acid gas, and there is a firm in Rhode Island which has come out recently with a baking powder containing 10 per cent of carbonic-acid gas, and presents logical arguments why 10 per cent is as desirable as 17 per cent. If the gentlemen in the Department of Agriculture should decide 12, 13, or 14 per cent to be the proper thing, the men in Providence would have lost \$300,000 or \$400,000, and the men in the South would have lost their business, amounting to \$1,000,000 or more. (Senate committee, 24, 25.)

Mr. ACH believes that lodging so much power in the hands of one individual or coterie, as contemplated by section 7, would subject them to such temptation as

never before assailed mortal man in this country. He bases this statement on what the profits of the cream of tartar baking powder company would be if the measure should be adopted. He declines to sanction any measure that would subject any man to such temptation. (Senate committee, 24.)

Dr. PENNIMAN, chemist of the Maryland State board of health, prefers to leave the wholesomeness of alum baking powder to the courts, rather than to the Secretary of Agriculture, because while a jury of 12 intelligent men have sometimes let a guilty man escape, they have seldom convicted an innocent one; but in a scientific commission the strongest mind is very apt to lead, and one man will make up the finding of the whole. (Senate committee, 22.)

Mr. JOHN DAVIS, president of the Detroit Chemical Works, asks that the decision as to the standards and comparative usefulness of baking powders be made in the courts, where a proper defense can be made.

Mr. ARTHUR WYMAN, general agent of the Pennsylvania Salt Manufacturing Company, states that one of the products made by this company is alum. He believes it a legitimate industry, and is opposed to any adverse national legislation which will prevent its being heard on its merits in the courts. (Senate committee, 5.)

Mr. E. L. DUDLEY, of Dudley & Co., Fairport, N. Y., is opposed to section 7 of bill 3618 as antagonistic to his business, and says it would ruin his company. (Senate committee, 30.)

Dr. WILEY, chief chemist of the Department of Agriculture, says the whole question of advertising and trade rivalry is entirely foreign to the bill under consideration. The great question is whether things which are added to food are injurious and what is the best method of finding out. The provisions objected to had all been drawn long before Senator Mason's committee commenced its investigation, and were in the bills reported during many sessions. The object has been to establish some unbiased commission, which could get at the matter without being paid by rival concerns, not being in the employ of any commercial interest, but selected jointly by the President of the United States and the Secretary of Agriculture, and presumably of a high order and unbiased in its relations to trade interests.

Dr. Wiley says he would deplore any action which would injure any legitimate business, and would be the first to condemn the findings of a commission which would be unfair to anyone's trade interests. It seems to him that it is unfair to assume that section 7 is antagonistic to alum baking powder; it had no more reference to alum baking powder than to any other injurious substance. The bill provides that every interest shall be heard by the commission. In studying the effect of alum in food the commission would be required to inform the manufacturers, and ask them to appear and present their side of the case. (Senate committee, 33, 34.)

D. Amendment to Senate bill 3618.—Dr. WILEY expresses his entire willingness to accept an amendment making the findings of the commission simply a guide to the court instead of obligatory upon the courts. (Senate committee, 34.)

Mr. STEELE submits an amendment, approved by Dr. Wiley, making the standards and determinations approved by the Secretary of Agriculture merely evidence, which may be heard with all the weight that would naturally attach to the conclusion of a commission of experts, but leaving the parties in interest at liberty to show that the conclusion may be erroneous. (Senate committee, 35, 36.)

DIGEST OF THE LAWS OF THE UNITED STATES AND THE SEVERAL STATES AND TERRITORIES RELATING TO ADULTERATED AND UNWHOLESOME FOOD.

INTRODUCTION.

AUTHORITIES FOR THE ENFORCEMENT OF PURE-FOOD LAWS.

While laws of one kind or another prohibiting the adulteration of food are found in practically every State in the Union, effective provisions for the enforcement of these laws have been enacted in only about half of the Commonwealths. In Connecticut and Kentucky the State agricultural experiment station is charged with the enforcement of the laws regarding adulteration of food and unwholesome food, while Connecticut has also a dairy commissioner to enforce the regulations as to dairy products. The State board of agriculture in North Carolina is directed to enforce the pure-food laws, while in Missouri and New York the board of agriculture enforces the laws relating to dairy products only. In New York, New Jersey, Indiana, Louisiana, Massachusetts, New Hampshire, South Carolina, and Tennessee the State board of health is the authority for executing these laws, and is usually empowered to appoint inspectors and in some cases chemists and other experts. Special officers, usually known by the title of dairy and food commissioners, have been established for the enforcement of the pure-food laws in Illinois, Michigan, Minnesota, Nebraska, Ohio, Oregon, Pennsylvania, Utah, Washington, and Wisconsin. California, Colorado, Iowa, and North Dakota have dairy commissioners to administer the laws regarding dairy products, but have no special officers to enforce the other pure-food laws.

These various authorities and their inspectors or agents are, in every case, given quite definite authority to enter premises where they believe articles of food are manufactured or sold, to open any package and inspect the contents, and to take samples for analysis. Penalties are usually prescribed for hindering these officers in the discharge of their duties. In several of the States where such special officers exist, and in some others where the law makes no provision for State inspection, it is provided that manufacturers and sellers of articles of food must deliver a sample to any person interested who tenders the market price.

GENERAL LAWS REGARDING THE ADULTERATION OF FOOD.

Practically every State and Territory has a provision of some sort prohibiting the adulteration of food and the sale of adulterated food. In a considerable number of States, especially in the South and West, these provisions are very brief and general in their form. They do not carefully define adulterations or provide for exceptions. More recent laws enacted in over half of the States are much more elaborate and effective. In many cases the language used in these later laws is practically identical in the different States. After defining food in a broad manner, especially so as to include articles of drink, they usually declare that food

shall be deemed adulterated in the following cases: "First, if any substance or substances have been mixed with it so as to reduce or lower or injuriously affect its quality or strength; second, if an inferior or cheaper substance or substances have been substituted wholly or in part for it; third, if any valuable constituent has been wholly or in part abstracted from it; fourth, if it is an imitation of or is sold under the name of another article; fifth, if it consists wholly or in part of a diseased, decomposed, putrid, or rotten animal or vegetable substance, whether manufactured or not; sixth, if it is colored, coated, polished, or powdered whereby damage is concealed, or if it is made to appear better or of greater value than it really is; seventh, if it contains any added poisonous ingredient or any ingredient which may render it injurious to the health of a person consuming." There are some modifications in detail in the laws of the various States.

These general laws also provide for certain exceptions from their definitions. Thus it is commonly declared that mixtures or compounds known as ordinary articles of food shall not be deemed adulterated if they are so labeled as distinctly to show their character and if they contain no injurious substance. The further provision is added by a few States that such permissible compounds must contain every necessary ingredient and no unnecessary ingredient, while a few States require that the names of their ingredients shall be placed on the label.

Oregon and South Dakota have detailed definitions of adulterated foods, but permit their sale if properly labeled to show their true character.

These more elaborate laws usually contain also definite provisions regarding their enforcement, which are seldom found in the briefer laws. Sometimes there are very detailed requirements regarding the taking of samples, such as a requirement that the sample shall be taken in the presence of the owner or his representative and often another witness, or the requirement that a part of the sample shall be sealed up separately and left with the person in charge as a protection against error and fraud in the analysis of the article.

In Colorado, Iowa, New Hampshire, and Maryland the laws regarding food adulterations are less elaborate. They declare usually that no injurious adulteration shall be permitted, but that mixtures or adulterations which are not harmful may be sold if the purchaser is informed of their character and if they are properly labeled.

SALE OF UNWHOLESOME FOOD.

Nearly all of the States prohibit the sale of impure, corrupted, decayed, or otherwise unwholesome articles of food or drink. A few States make this prohibition only with the added clause, "unless the buyer is informed as to the true character of articles." The laws on this subject are for the most part brief and do not differ greatly among themselves. Some add more specific prohibitions, such as that the flesh of an animal which was diseased or which died otherwise than by slaughter shall not be sold; but the general terms of the other laws would doubtless cover cases of this sort.

Most of the States having detailed laws concerning food adulteration such as have already been described include, under the definitions of adulterated food, articles which consist of or contain tainted or unwholesome animal or vegetable matter. Some of these States have also separate provisions regarding unwholesome food, but in others the definition in the general law is the only one on this subject.

The laws of a dozen or more States, including such important States as Illinois, Indiana, Massachusetts, Missouri, and New York, prohibit the killing, for the purpose of sale, of a calf under the age of 4 weeks (in one or two States, 6 weeks) or the sale of the flesh of a calf killed under that age. Ohio has a more detailed law on this subject.

VINEGAR.

Approximately half of the States have special laws regarding the adulteration or fixing the standard of vinegar. Kansas, Maine, Maryland, and New Jersey content themselves with declaring that no vinegar shall be sold as cider vinegar which is not produced solely from pure apple juice, and that no injurious ingredients shall be used in vinegar of any sort. Missouri prohibits imitations of fruit vinegar and the use of artificial coloring in vinegar. The other States regulating vinegar are Connecticut, District of Columbia, Illinois, Indiana, Kansas, Michigan, Minnesota, Nebraska, New York, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Virginia, and Wisconsin. The laws of these States have the general provisions above named, but add other more elaborate requirements. They require that vinegar shall have an acidity usually equivalent to 4 per cent of absolute acetic acid; in Minnesota, New York, Oregon, South Dakota, Rhode Island, and Virginia the standard is $4\frac{1}{2}$ per cent. Most of these States declare further that cider vinegar must contain at least 2 per cent of cider vinegar solids. It is also a common requirement that all vinegar shall be made exclusively from the fruit or grain from which it purports to be made and shall be correctly branded. In many States the law requires the name and residence of the manufacturer of vinegar, especially if it is labeled "cider vinegar," to be branded on the package. In a few States there is a clause fixing the percentage of solids and of mineral matter or mineral ash which must be contained in fruit vinegar of any kind. A somewhat more common provision prohibits the use of artificial coloring matter in vinegar. Ohio, Michigan, Pennsylvania, and Illinois require the branding of vinegar in such a way as to indicate whether it is fermented or distilled, while Minnesota, South Dakota, Utah, and one or two other States require the strength or acidity to be marked.

ADULTERATION OF LIQUORS.

Liquors are uniformly included under the definition of food in connection with the general laws prohibiting food adulteration. In addition a considerable number of States have special laws regarding the adulteration of liquors intended for use as beverages. The most usual form of these laws is a prohibition upon the adulteration of spirituous or malt liquors with certain enumerated drugs or with other injurious substances. The drugs which are most commonly named in the prohibition are *coc ulus indicus*, wormwood, aloes, salicylic acid, etc.

Georgia, Indiana, New York, and Ohio have special laws prohibiting the adulteration of domestic wine (that is, wine made within the State) with other liquors or foreign substances. The Ohio and New York laws are exceedingly detailed, providing for the labeling of wine "pure wine," "wine" or "half wine," and "compound wine" according to its standard.

Missouri has established an inspector of beer whose duty it is to inspect all breweries and to stamp every package containing beer with a certificate as to its purity. Beer must be manufactured only from pure enumerated grains, malt, hops, and yeast.

SUGAR, SIRUP, AND HONEY.

The laws of Connecticut, District of Columbia, Iowa, Louisiana, Maine, Maryland, Massachusetts, and Michigan contain special provision regarding the adulteration of sugar and molasses with glucose, starch sugar, and similar products. In some instances the law merely prohibits fraudulent adulteration, while in other States it is provided that the proportion of glucose or the proportions of all the ingredients must be labeled upon packages containing such adulterants. In California, Kentucky, Minnesota, South Dakota, and Vermont there are found provisions requiring that compounds in imitation of honey not produced exclusively

by the honey bee must be labeled to show their true character. Minnesota and South Dakota further prohibit the sale as genuine of honey produced by bees fed with sugar, glucose, or similar substances.

In Massachusetts, Michigan, Ohio, Vermont, and New York the adulteration of maple sugar or sirup with cane sugar or glucose or other substances is prohibited, as well as the sale of such adulterated articles. New York and Ohio further prohibit the adulteration of cane sugar or sirup with maple sugar or sirup.

ADULTERATED CANDY.

Within comparatively recent years a large majority of the States have passed laws prohibiting injurious adulterations of candy. These laws are usually in practically the same language. They declare it unlawful to manufacture or sell candy containing terra alba, barytes, talc, or other mineral substances, or injurious flavors or coloring matter, or other harmful substances.

CANNED GOODS.

In Illinois, Iowa, Kentucky, Massachusetts, Michigan, Ohio, and Wisconsin the law requires that canned goods of any sort must be distinctly labeled with the name and place of business of the packer (or, in some States, of either the packer or the dealer), together with some term indicating the quality of the contents. Most of these States further declare that so-called "soaked" or "bleached" goods—that is, goods canned from products previously dried—must be labeled as such in prescribed type.

ADULTERATION OF LARD.

Eleven States have special provisions regarding the adulteration of lard (District of Columbia, Illinois, Iowa, Kentucky, Maine, Massachusetts, Michigan, Minnesota, Pennsylvania, South Dakota, and Vermont). The usual provision is that no combination of fats or oils not produced exclusively from pure fat of healthy swine shall be marked "pure," "refined," or "family," but that every such compound must be distinctly marked in prescribed type "compound lard" or, in some States, "substitute." Lard mixed with other substances must in some of these States be marked "adulterated." In two or three States the name of the manufacturer of such compounds must also be placed on the label, and in others retail packages containing it must be accompanied with a proper label.

ADULTERATION OF OTHER ARTICLES OF FOOD.

In certain States provisions regarding the adulteration of other specific articles have been enacted. Thus in California it is unlawful to sell adulterations or imitations of olive oil. The laws of the District of Columbia define in detail the standards of coffee, tea, cider, glucose, flour, bread, and olive oil. In Illinois, Michigan, South Dakota, and Minnesota there are special regulations requiring the labeling of imitations or adulterations of jellies or jams. Wisconsin, South Dakota, and Minnesota regulate the manufacture and sale of baking powder, especially that containing alum. In Nebraska and Virginia the adulteration of cider is prohibited, while in Missouri, Texas, Virginia, and Vermont mixtures of grain or adulterations of flour or meal must be labeled to show their true character. Illinois has regulations concerning the adulteration of flavoring extracts, chocolate, and cocoanut, while Minnesota and South Dakota similarly regulate the adulteration of spices and condiments.

IMITATION BUTTER, OLEOMARGARINE, ETC.

Almost every State and Territory in the Union has a special provision in its laws regarding imitations of butter. Many of these provisions are highly elaborate. In more than half of the States it is declared that imitations of butter must be wholly free from coloration. Most of the great dairy States have this provision. A common form of the law is to prohibit the manufacture or sale of any compound of fats, in imitation of butter, not produced wholly from pure milk or cream, with the proviso that oleomargarine may be sold in separate form, in such manner as to advise the consumer of its true character, free from coloration or from any ingredient which makes it look like butter. In other States it is declared that no person shall mix any combination of fats not produced from pure milk or cream with annatto or other coloring substances or with genuine butter, so as to make the product resemble butter.

A large proportion of the States which thus provide that imitations of butter shall be free from coloring add further that they shall be labeled distinctly to show their true character. In some cases the label must be "substitute for butter;" in other cases "oleomargarine," while a few States allow various alternative phrases to be used. Such labels must be placed conspicuously upon the original package, often in two or more places, and retail sales must be accompanied by a wrapper or label of a similar character. The size of type is generally prescribed where labels are required. A half dozen of the States which forbid the coloring of imitation butter content themselves with a further prohibition upon the sale of imitation butter as genuine, without distinctly prescribing the method of marking it.

Vermont, South Dakota, and West Virginia require oleomargarine to be colored pink. In 13 States, the most important of which are California, Indiana, and Michigan, the law does not prohibit the coloration of imitation butter but merely requires it to be labeled properly. The provisions regarding these labels correspond closely with those already referred to. Of these 13 States, California, North Carolina, and Michigan further require the names of the ingredients of imitation butter to be placed upon the label. And there is a similar requirement in Ohio, where the coloration of oleomargarine is also prohibited.

Two or three States merely prohibit the sale of imitations of butter without more specific provisions. It is probable that these laws would be construed to permit the sale of oleomargarine in distinct form.

More than two-thirds of the States which have laws directed against the manufacture and sale of imitation butter add a provision that keepers of hotels, boarding houses, and other places of public entertainment, who use or serve such imitation, must give notice of the fact to their guests, either verbally or by printing upon the bill of fare or by posting a conspicuous notice in prescribed type, or sometimes by all of these methods. In California, New York, Pennsylvania, Utah, and Wisconsin it is unlawful to use imitation butter or cheese in any institution receiving State support. Several States, notably Connecticut, Massachusetts, Ohio, Michigan, and Wisconsin, further require that all places where oleomargarine or similar substances are sold shall maintain conspicuous notices to that effect. Pennsylvania and Nebraska require manufacturers and dealers in imitation butter to obtain a State license, paying fees of considerable amount. In Connecticut, New York, Minnesota, and one or two other States the law declares that the words "butter," "dairy," "creamery," or any name or representation of a breed of dairy cattle, shall not be used in connection with imitations of butter.

California, Michigan, Minnesota, Pennsylvania, and Wisconsin have recently enacted laws regarding what is known as "process butter" or boiled butter—made by melting down original stock butter, usually of an inferior character,

and mixing it with milk and reworking it into the form of butter. These States require that butter produced in this way shall be conspicuously labeled "process butter" or "renovated butter."

IMITATION AND FILLED CHEESE.

Laws regarding the adulteration or imitation of cheese are less generally found than those regarding imitation butter. In eight of the States the laws already described regarding imitation butter embrace also imitation cheese; it is thus unlawful to color any imitation to resemble genuine cheese, and labels of imitations are required. In six other States there are separate provisions prohibiting the sale of imitation cheese as genuine, while two States require that it shall be conspicuously labeled as such. "Imitation" in these States seems usually to include what is elsewhere defined as "filled" cheese. Several of the leading dairy States, notably Michigan, New York, Pennsylvania, Utah, Washington, and Wisconsin, prohibit the sale of "filled cheese," that is, cheese into which melted butter or animal fats or oils have been introduced. In Ohio and New Hampshire filled cheese may be sold if labeled conspicuously as such.

BRANDING OF CHEESE.

California, Colorado, Michigan, New York, North Dakota, Ohio, Pennsylvania, Washington, and Wisconsin, all important dairy States, provide for the branding of cheese. Full cream cheese is defined in some of these States as that made from milk from which no cream has been removed, or milk conforming to the legal standard. In other States it is defined as cheese containing a certain percentage of fats to total solids or to total weight; these percentages differ materially. Nearly all the States named authorize and some of them require the branding of full cream cheese as such, usually with the name of the State added. Stencils for this purpose are in many cases furnished by State authorities. In four of these States it is required that cheese made from skimmed milk shall be conspicuously labeled "skimmed cheese," and there is a similar provision as to skimmed cheese in two or three States which have no other restrictions on this subject. California and Pennsylvania establish several different grades of cheese according to the percentage of fat, and require them to be labeled as such.

PURITY OF MILK.

Nearly all of the States have laws prohibiting the adulteration of milk, or the sale of adulterated milk, and most of them add a prohibition against the sale of impure or unwholesome milk. In many States detailed definitions are given as to what constitutes adulterated or impure or unwholesome milk. Thus milk is considered adulterated if water or any other foreign substance is added to it. It is considered unwholesome if taken from cows having diseases, sores, etc., or within 15 days before or 4 or 5 days after parturition, or from cows which are fed upon any substance in a state of putrefaction or otherwise tending to produce unwholesome milk. A number of the States specially declare that milk from cows fed on brewery or distillery waste shall be considered unwholesome. A smaller number of States have laws prohibiting the keeping of cows which are used to produce milk for sale in stables which are crowded or otherwise unhealthy, and further prohibiting the sale of milk from cows kept in such conditions, while two or three also forbid the sale of milk exposed to exhalations, etc., from persons having contagious diseases.

In several States the sale of skimmed milk or milk from which the strippings have been withheld is prohibited, though it is possible that the courts would interpret this provision to mean that such milk must not be sold as pure. The

laws of several other States contain such a modifying provision, declaring that skimmed milk may be sold only with notice to the purchaser of its character. In fully half of the States, including most of the leading dairy States and those containing large cities, skimmed milk may be sold only from cans or vessels conspicuously marked, in prescribed type, with the words "skimmed milk." The New York law especially declares that skimmed milk shall not be sold at all in Greater New York, but may be sold as such in other parts of the State.

About half of the States, including the most populous and important ones, define the standard of milk in terms of the proportion of butter fat and of total solids to the entire weight of the milk. The most common requirement is that milk shall contain not less than 8 per cent of butter fat, but the District of Columbia, Maryland, and Minnesota require 8.5 per cent, while Massachusetts requires 8.7 per cent. The standard for total solids including fat is 11.5 per cent in 1 State, 12 per cent in 4 States, 12.5 per cent in 6 States, and 13 per cent in 3 States (Massachusetts, Minnesota, and New Hampshire).

Several of the leading dairy States have provisions also regarding creameries and cheese factories, regulating the method of testing, weighing, and accounting for milk, and prohibiting the conversion of milk or its products, when received in trust for manufacture for the benefit of the owner, to the use of any other person. In a few cases the law declares that creameries and utensils used in connection with them must be kept in a clean and sanitary condition.

The enforcement of the law regarding the purity of milk is often placed in the hands of local inspectors or boards of health, even in States having central dairy officers. In California State inspectors of milk are provided for, while in Iowa, Minnesota, and Washington persons selling milk in cities are required to obtain licenses from the State authorities, which are also charged with the enforcement of the laws as to milk. The dairy laws of Connecticut, District of Columbia, Maine, Maryland, Massachusetts, Michigan, New Hampshire, and Rhode Island authorize or require local governments to appoint inspectors of milk and prescribe the powers of these inspectors. In several of these States it is further provided that keepers of dairies must obtain licenses or permits. It should be noted also that the laws regarding municipal corporations frequently contain provisions authorizing them to regulate the adulteration and sale of milk, and to inspect it.

CHEMICAL PRESERVATIVES IN DAIRY PRODUCTS.

Several States (Kansas, Maryland, Michigan, Minnesota, New York, Pennsylvania, Virginia, and Wisconsin) expressly prohibit the use of certain enumerated or other injurious chemicals in milk, butter, or other dairy products. These chemicals are mostly such as are used for preserving these products.

I.—TABULAR SUMMARY OF LAWS OF THE STATES AND TERRITORIES

States.	Authorities for enforcing law.	General provisions as to food adulteration.
Alabama .....	.....	Brief general prohibition
Arizona .....	.....	Brief general prohibition
Arkansas .....	.....	.....
California .....	.....	Detailed definitions; must be labeled.
Colorado .....	.....	Injurious adulterations prohibited ..
Connecticut	Agricultural experiment station	Detailed definitions
Delaware .....	.....	.....
District of Columbia ..	Health officer of District	Detailed definitions
Florida .....	.....	Brief general prohibition
Georgia .....	.....	Unlawful unless labeled
Idaho .....	.....	Brief general prohibition
Illinois	Food commissioner; inspectors	Detailed definitions
Indiana	State board of health	Detailed definitions
Iowa .....	.....	Unlawful unless labeled
Kansas .....	.....	Detailed definitions
Kentucky	Agricultural experiment station; inspectors	Detailed definitions
Louisiana	State board of health	Detailed definitions; must be marked with quality
Maine .....	.....	Brief general prohibition
Maryland .....	.....	Unlawful unless labeled
Massachusetts	State board of health; inspectors	Detailed definitions
Michigan	Dairy and food commissioner; inspectors	Detailed definitions
Minnesota	Dairy and food commissioner; inspectors	Brief general prohibition
Mississippi .....	.....	Detailed definitions
Missouri .....	.....	Brief general prohibition; poisonous adulterations
Montana .....	.....	Brief general prohibition
Nebraska	Dairy and food commissioner	Detailed definitions
Nevada .....	.....	Brief general prohibition
New Hampshire	State board of health	Detailed definitions
New Jersey	State board of health and dairy commissioner	Detailed definitions
New Mexico .....	.....	Unlawful unless labeled
New York	State board of health; inspectors	Detailed definitions
North Carolina	State board of agriculture	Detailed definitions
North Dakota .....	.....	Brief general prohibition
Ohio	Dairy and food commissioner	Detailed definitions
Oklahoma .....	.....	Brief general prohibition
Oregon	Dairy and food commissioner	Detailed definitions; labeled
Pennsylvania	Dairy and food commissioner; inspectors	Detailed definitions
Rhode Island .....	.....	Brief general prohibition
South Carolina	State board of health; inspectors	Detailed definitions
South Dakota .....	.....	Detailed definitions; labeled
Tennessee	State board of health; experts	Detailed definitions
Texas .....	.....	.....
Utah	Dairy and food commissioner	Brief general prohibition
Vermont .....	.....	Brief general prohibition
Virginia .....	.....	Brief general prohibition
Washington	Dairy and food commissioner	Detailed definitions
West Virginia .....	.....	Brief general prohibition
Wisconsin	Dairy and food commissioner	Detailed definitions
Wyoming .....	.....	Brief general prohibition

RELATING TO THE ADULTERATION OF FOODS GENERALLY.

Unwholesome or spoiled food.	Adulteration of liquors.
Brief general prohibition.....	Drugs and injurious substances prohibited.
Brief general prohibition.....	
Brief general prohibition; veal.....	
Covered by definition of adulteration.....	Injurious substances prohibited.
Brief general prohibition.....	
Covered by adulteration.....	
Covered by adulteration.....	Injurious adulterations prohibited.
Covered by adulteration.....	Injurious adulterations prohibited.
Buyer must be informed; veal.....	Domestic wine—adulteration prohibited.
Brief general prohibition.....	
Brief general prohibition.....	
Covered by adulteration; veal.....	
Brief general prohibition; veal.....	Injurious substances prohibited; domestic wine
Buyer must be informed.....	
Buyer must be informed.....	
Covered by adulteration.....	
Unlawful unless buyer informed.....	
Buyer must be informed; veal.....	
Brief general prohibition.....	Injurious substances prohibited.
Buyer must be informed; veal.....	Injurious adulterations prohibited.
Covered by adulteration.....	Injurious and abnormal ingredients prohibited.
Brief general prohibition.....	Injurious and abnormal ingredients prohibited.
Brief general prohibition.....	
Brief general prohibition; veal.....	Poisonous ingredients prohibited; detailed reg-
Brief general prohibition.....	ulation of beer.
Covered by adulteration.....	
Brief general prohibition.....	
Covered by adulteration; veal.....	Injurious adulterations prohibited.
Covered by adulteration.....	
Buyer must be informed.....	
Brief general prohibition.....	Injurious and abnormal ingredients prohibited;
Covered by adulteration.....	domestic wines.
Brief general prohibition.....	
Buyer informed; veal—regulations.....	Regulation of domestic wine.
Brief general prohibition.....	
Covered by adulteration; veal.....	
Buyer must be informed; veal.....	Adulteration prohibited; State assayer.
Brief general prohibition.....	Injurious or abnormal ingredients prohibited.
Unlawful unless buyer informed.....	
Covered by adulteration.....	
Brief general prohibition.....	
Brief general prohibition; veal.....	
Buyer must be informed.....	
Covered by adulteration.....	
Unlawful unless buyer informed.....	
Unlawful unless buyer informed.....	
Brief general prohibition.....	

II.—TABULAR SUMMARY OF LAWS OF THE STATES AND TERRITORIES

States.	Vinegar.	Sugar and sirup.	Maple sugar and sirup; honey.
Alabama			
Arizona			
Arkansas			
California			Honey—adulteration prohibited; compounds labeled.
Colorado		Glucose—buyer informed; percentage marked.	
Connecticut	4 per cent acidity; branding kind; no harmful ingredients.	Adulteration prohibited	
Delaware			
District of Columbia ..	4 per cent acidity; imitation cider vinegar.	Adulteration prohibited	
Florida			
Georgia			
Idaho	4½ per cent acidity; imitation cider vinegar; injurious ingredients.		
Illinois	4 per cent acidity; branding quality and kind; harmful ingredients.		
Indiana	4 per cent acidity; branding kind; harmful ingredients.		
Iowa		Glucose—buyer informed; percentage marked.	
Kansas	Imitation cider vinegar; harmful ingredients.		
Kentucky	Branded with process and material of manufacture.		Honey—compounds labeled.
Louisiana		Adulteration prohibited	
Maine	Imitation cider vinegar; harmful ingredients.	Adulteration prohibited	
Maryland	Injurious ingredients prohibited.	Glucose forbidden in sugar, sirup, or honey.	
Massachusetts		Molasses marked with ingredients.	Maple sirup marked with ingredients.
Michigan	4 per cent acidity; branding quality and kind; harmful ingredients.	Molasses and sirup branded; proportion of glucose.	Maple sirup; adulterants marked with percentages.
Minnesota	4½ per cent acidity; branding kind and strength; harmful ingredients.		Honey; compounds labeled.
Mississippi			
Missouri	Imitation cider or fruit vinegar prohibited; no coloring.		
Montana			
Nebraska	4 per cent acidity; branding kind; licenses; harmful ingredients.		
Nevada			
New Hampshire			
New Jersey	Imitation cider vinegar; injurious ingredients.		
New Mexico			
New York	4½ per cent acidity; branding kind; harmful ingredients.		Maple sirup; adulteration forbidden.
North Carolina			
North Dakota			
Ohio	4 per cent acidity; branding quality and kind; harmful ingredients.		Maple sirup; adulteration prohibited.
Oklahoma			

RELATING TO THE ADULTERATION OF SPECIAL ARTICLES OF FOOD.

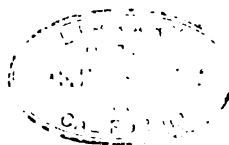
Candy— injurious adultera- tions, flavors, and colors.	Canned goods.	Lard adulterations and compounds.	Other articles.
Uniform law			Adulteration of olive oil.
Uniform law			Coffee, tea, cider, glu- cose, flour, bread, olive oil, standards defined.
Uniform law		Adulteration prohibited; labeling compounds.	
Uniform law			
Uniform law			Extracts, chocolate, co- conut, jellies.
Uniform law	Manufacturer's or dealer's name; soaked goods la- beled.	Labeled "compound" ..	
Uniform law			
Uniform law	Manufacturer's or dealer's name; soaked goods la- beled.	Labeled "compound," with manufacturer's name.	Cleaning of rice with oil, etc.
	Manufacturer's or dealer's name; soaked goods la- beled.	Labeled to show true character.	
Uniform law			
Uniform law		Labeled "compound" ..	Impure ice.
Uniform law	Manufacturer's or dealer's name; soaked goods la- beled.	Labeled "compound" ..	
Uniform law	Manufacturer's or dealer's name; soaked goods la- beled.	Labeled "compound," etc.	
Uniform law		Labeled "substitute" or "adulterated," with ingredients.	Jelly, coffee, buckwheat flour; labeled.
Uniform law			Jelly, spices, baking powder; labeled.
Uniform law			Adulteration of flour.
Uniform law			
Uniform law			
Uniform law			Adulteration of cider.
Uniform law			
Uniform law			
Uniform law			Impure ice; biscuits.
Uniform law			
Uniform law			
Uniform law			Impure ice; fruit juices, coloring matter.
Uniform law			
Uniform law			
Uniform law			Adulteration of choco- late.
Uniform law			
Uniform law	Manufacturer's or dealer's name; soaked goods la- beled.		

II.—TABULAR SUMMARY OF LAWS OF THE STATES AND TERRITORIES RELATING

States.	Vinegar.	Sugar and sirup.	Maple sugar and sirup; honey.
Oregon	4½ per cent acidity; imitation cider vinegar; injurious ingredients.		
Pennsylvania.....	4 per cent acidity; branding quality and kind.		
Rhode Island	4½ per cent acidity; imitation cider vinegar.		
South Carolina			
South Dakota.....	Detailed regulations.....		Adulterated honey labeled.
Tennessee			
Texas.....			
Utah.....	4½ per cent acidity; branding kind and strength; injurious ingredients.		
Virginia	Imitation cider vinegar; 4½ per cent acidity; injurious ingredients.		
Vermont.....			Honey and maple sirup; adulteration prohibited.
West Virginia			
Washington			
Wisconsin	Imitation cider vinegar; 4 per cent acidity; no injurious ingredients.		
Wyoming.....			

TO THE ADULTERATION OF SPECIAL ARTICLES OF FOOD—Continued.

Candy— Injurious adultera- tions, flavors, and colors.	Canned goods.	Lard adulterations and compounds.	Other articles.
			Jellies and jams.
Uniform law		Labeled "compound"	
Uniform law			
Uniform law			
		Labeled "substitute" or "adulterated."	Jellies, spices, and bak- ing powder; labeled.
Uniform law			Adulteration of flour, etc.
Uniform law			
Uniform law			Flour and cider.
Uniform law		Labeled "compound"	Flour and meal.
	Manufacturer's or dealer's name; soaked goods la- beled.		Alum baking powder; so labeled.
Uniform law			



III.—TABULAR SUMMARY OF LAWS OF THE STATES AND

States.	Authorities for enforcement.	Imitation butter—oleomargarine, etc.	Imitation cheese.
Alabama		No coloration or sale as genuine. Hotels, etc.	
Arizona		Imitations labeled. Hotels, etc.	
Arkansas		Imitations labeled. Hotels, etc.	
California	Dairy bureau.	Labeled "substitute" with ingredients.	
Colorado	Dairy commissioner.	No coloration or sale as genuine. Hotels, etc.	Imitation branded.
Connecticut	Dairy commissioner.	No coloration. Labeled. Hotels, etc.	
Delaware		No coloration. Labeled. Hotels, etc.	
District of Columbia	District health officer.	Imitations labeled.	
Florida		Sale as genuine prohibited. Hotels.	
Georgia		No coloring. Labeled. Hotels, etc.	Same as for butter.
Idaho		No coloration. Labeled true name.	
Illinois	Food commissioner.	No coloring. Labeled. Hotels, etc.	
Indiana		Labeled "oleomargarine." Hotels, etc.	
Iowa	Dairy commissioner.	No coloration. Labeled. Hotels, etc.	Same as for butter.
Kansas			
Kentucky		Imitation labeled.	
Louisiana		Imitation labeled.	
Maine		Imitation prohibited.	
Maryland		No coloration or sale as genuine. Hotels, etc.	
Massachusetts	Board of agriculture.	No coloration. Labeled. Hotels, etc.	Imitations labeled.
Michigan	Dairy and food commissioner.	Imitations labeled with ingredients. Hotels, etc.	Imitation and filled cheese prohibited.
Minnesota	Dairy and food commissioner.	No coloring or sale as genuine. Hotels, etc.	Same as for butter.
Mississippi		Imitations labeled.	
Missouri	Board of agriculture.	No coloring. Labeled. Hotels, etc.	
Montana		Imitations labeled. Hotels, etc.	
Nebraska	Food commission.	No coloration. Labeled. Hotels, etc.	Same as for butter.
Nevada		Imitations labeled.	
New Hampshire		No coloration. Labeled. Hotels, etc.	Same as for butter.
New Jersey	Dairy commissioner.	No coloration. Labeled.	Same as for butter.
New Mexico			
New York	Board of agriculture.	No coloration. Labeled. Hotels, etc.	Imitations prohibited.
North Carolina	State board of agriculture.	Labeled, with ingredients.	
North Dakota	Dairy commissioner.	No coloration. Labeled. Hotels, etc.	Filled cheese labeled.
Ohio	Dairy and food commissioner.	No coloration. Ingredients on label. Hotels, etc.	Same as for butter.
Oklahoma			
Oregon		Record of sales.	Record of sales.
Pennsylvania	Dairy and food commissioner.	No coloration. Labeled. Licenses. Hotels, etc.	Imitation or filled cheese prohibited.
Rhode Island		Labeled "oleomargarine"	
South Carolina		No coloration. Labeled. Hotels, etc.	Same as for butter.
South Dakota		Must be colored pink and labeled.	
Tennessee		No coloration. Labeled.	
Texas			

TERRITORIES RELATING TO THE PURITY OF DAIRY PRODUCTS.

Branding or labeling of cheese.	Adulterated or unwholesome milk.	Milk standard.		Other provisions.
		Fat.	Total solids.	
		<i>Per cent.</i>	<i>Per cent.</i>	
Three grades.....	Prohibited. State inspection.			Process butter. Imitations prohibited in State institutions.
Two grades branded.	Prohibited. Skimmed as such. Local inspectors.			
	Prohibited. Skimmed labeled.			
	Prohibited. Skimmed labeled. Licenses.	3.5	12.5	
	Prohibited. Skimmed labeled.	3	12	Injurious materials prohibited.
	Prohibited. Skimmed prohibited.			
Skimmed cheese labeled.	Prohibited. Skimmed labeled. State licenses.	3	12.5	
	Prohibited. Skimmed prohibited.			
	Prohibited. Skimmed labeled. Local inspectors.	3	12.5	Chemical preservatives prohibited. Condensed milk regulated. Condensed milk regulated.
	Prohibited. Skimmed labeled. Local inspectors.	3.5	12.5	
	Prohibited. Skimmed labeled. Local inspectors.	3.7	13	
Full cream cheese branded.	Prohibited. Skimmed labeled. Local inspectors.	3	12.5	
Two grades.....	Prohibited. Skimmed labeled. State licenses.	3.5	13	Process butter. Chemical preservatives prohibited.
Skimmed cheese labeled.				
	Prohibited. Skimmed labeled.		18	Imitations in State institutions prohibited. Injurious acids, etc. Condensed milk.
	Prohibited. Skimmed labeled. Local licenses.		12	
	Prohibited. Local inspectors. Skimmed as such.			
Full cream and skimmed cheese labeled.	Prohibited. Skimmed labeled. or prohibited.	3	12	
Skimmed and other grades labeled.	Prohibited. Skimmed labeled.	3	12	Process butter.
Full cream, skimmed, and filled cheese labeled. Hotels, etc.	Prohibited. Skimmed labeled.	3	12	
	Prohibited. Dairy inspection.	3	12	Process and tub butter labeled. Process butter. Chemical preservatives. State institutions.
Labeled, five grades.	Prohibited. Source of milk indicated.			
	Prohibited. Skimmed labeled. Local inspectors.	2.5	12	
	Prohibited. Skimmed prohibited.	3	11.5	

III.—TABULAR SUMMARY OF LAWS OF THE STATES AND TERRITORIES

States.	Authorities for enforcement.	Imitation butter—oleomargarine, etc.	Imitation cheese.
Utah	Dairy and food commissioner.	No coloration. Labeled. Hotels, dealers, etc.	Filled cheese prohibited.
Virginia		No coloration or sale as genuine. Hotels, etc.	Same as for butter.
Vermont		Must be colored pink	Imitation prohibited.
West Virginia		Imitations labeled and colored pink.	
Washington	Dairy and food commissioner.	No coloration or sale as genuine. Hotels.	Filled and imitation cheese prohibited.
Wisconsin	Dairy and food commissioner.	No coloration. Labeled. Hotels, etc.	Filled and imitation cheese forbidden.
Wyoming			

RELATING TO THE PURITY OF DAIRY PRODUCTS—Continued.

Branding or labeling of cheese.	Adulterated or unwholesome milk.	Milk standard.		Other provisions.
		Fat.	Total solids.	
		<i>Per cent.</i>	<i>Per cent.</i>	
Skimmed cheese of special shape.	Prohibited.....			Injurious chemicals prohibited. State institutions. Injurious acids, etc., prohibited.
	Prohibited. Skimmed prohibited.	8½	12.5	
Full cream and skimmed cheese marked.	Prohibited. Skimmed labeled. State licenses.			Process butter labeled.
Full cream and skimmed cheese marked.	Adulterated, unwholesome or skimmed not sold as pure.			Imitations in State institutions. Chemical preservatives.

DIGEST OF LAWS BY STATES.

UNITED STATES.

Importation of adulterated food.—In connection with the act of August 30, 1890, regulating the inspection of meats for exportation from the United States, provisions were enacted making it unlawful to import into the United States adulterated or unwholesome food or drugs, or spirituous, vinous, or malt liquors containing any injurious ingredients. Penalty not over \$1,000 or imprisonment not over 1 year, or both, with forfeiture of the articles imported. The President, if satisfied that adulterated articles are being imported to an extent dangerous to the health and welfare of the people, may issue a proclamation suspending the importation of such articles. (Acts of 1890, ch. 839.)

Filled cheese.—Any substance, in imitation of cheese, made of milk or skimmed milk, with an admixture of butter, animal or vegetable fats, or other foreign compounds, is defined as "filled" cheese. Manufacturers of filled cheese must pay \$400 tax yearly; wholesale dealers, \$250; retail dealers, \$12. In addition, a tax of 1 cent per pound is collected from the manufacturer. Importers of filled cheese must pay, in addition to the regular import duties, an internal-revenue tax of 8 cents per pound. Detailed provisions are enacted regarding the collection of the tax, the stamping of packages to indicate payment, etc.

Every package of filled cheese must be branded as such, in letters not less than 2 inches long, on the top, bottom, and sides. Retail dealers shall sell only from original stamped or marked packages, and shall wrap the cheese sold to the consumer in a suitable package marked in accordance with rules to be established by the Commissioner of Internal Revenue. Retail and wholesale dealers in filled cheese must post conspicuously a sign, "Filled cheese sold here."

The enforcement of the law is in the hands of the Commissioner of Internal Revenue. Various fines and penalties are imposed for violations of the law. (Acts of 1897, ch. 337.)

Oleomargarine.—The United States law designates as oleomargarine all substances composed of animal or vegetable oil made in imitation of butter. Various such substances are enumerated. Manufacturers of oleomargarine are required to pay a tax of \$600 annually; wholesale dealers, \$480; retail dealers, \$48. In addition an internal-revenue tax of 2 cents per pound is imposed. Oleomargarine imported from foreign countries must pay an internal-revenue tax of 15 cents per pound in addition to import duty. Detailed regulations are provided regarding the method of collecting the tax and the use of stamps to indicate its payment.

Each package of oleomargarine must be marked and stamped in accordance with the regulations of the Commissioner of Internal Revenue.

Retail dealers shall use packages or wrappers similarly marked, and may sell only from original stamped packages.

The Commissioner of Internal Revenue is directed to employ an expert chemist and a microscopist, and may employ additional expert assistance to determine what substances should be subject to this tax.

Various penalties are imposed for different violations of the law. (Acts of 1886, ch. 840.)

Mixed flour.—The war-revenue act of 1898 levies an internal-revenue tax upon mixed flour. Mixed flour is defined as any product made from wheat mixed with any other grain or material or with the product of any other grain or material. Every person manufacturing or packing mixed flour shall pay an annual tax of \$12, and in addition a tax of 4 cents per barrel of not over 196 pounds, 2 cents per half barrel, and at the same rate for smaller packages. Detailed regulations are prescribed for the collection of the tax and the use of stamps to indicate payment. Each package must be marked "Mixed flour," in letters not less than 2 inches long, together with the name of the maker or packer, his place of business, and the name of the ingredients composing it. A card with similar information must be placed inside the package. Mixed flour imported from foreign countries must

pay a tax equal to the internal duty in addition to the import duties. Mixed flour exported from the United States is not subject to the tax, but must be properly marked. The Commissioner of Internal Revenue is instructed to make necessary regulations for enforcing the law. Various penalties are imposed for different violations of the act. (Acts of 1898, ch. 448, secs. 35-49.)

ALABAMA.

FOODS GENERALLY.

Adulterated food.—The law prohibits the mixing of any foreign matter with sugar, molasses, lard, butter, or other article of food so as to deteriorate its quality, or the sale of any such adulterated article. Penalty, \$50 to \$500, and, at discretion, not more than 6 months imprisonment.

Unwholesome food.—It is unlawful to sell tainted or unwholesome flesh or fish, or flesh of any animal dying otherwise than by slaughter, or slaughtered when diseased. Penalty, \$20 to \$200, and, at discretion, imprisonment not over 6 months.

Bread and crackers.—The manufacture or sale of bread or crackers made from sour or unwholesome flour is prohibited. Penalty, same as for adulterations. Every maker of such articles must have his name marked on each cracker or loaf of bread.

Adulterated liquors.—It is unlawful for any person to make or sell liquors adulterated by the mixture of any poisonous or unwholesome substance, or liquors containing any drug or oil. Penalty, \$250 to \$1,000. (Ala. Code 1896, secs. 5321-5328.)

Adulterated candy.—The manufacture or sale of candies adulterated with terra alba, barytes, talc, or other earthy substances, or with poisonous colorations or flavors or other injurious ingredients, is punishable by a fine of \$50 to \$500, and, at discretion, imprisonment not over 6 months. (Acts of 1896-97, ch. 525.)

DAIRY PRODUCTS.

Imitation butter.—The manufacture or sale of any article, in imitation of butter, which is not produced from unadulterated milk or cream, is forbidden, but oleomargarine may be made and sold in such a way as to show its true character, free from coloration and marked with its true name. Keepers of hotels, boarding houses, schools, and penal institutions must also conform to the law as regards boarders and others. Penalty, \$20 to \$100. (Acts of 1894-95, ch. 408.)

ARIZONA.

Adulterated food.—The adulteration or dilution, for sale as pure, of food, drink, or drug, or the sale as pure of such adulterated or diluted articles, is a misdemeanor. (Penal Code, secs. 606, 607.)

Unwholesome food.—The sale of tainted, decayed, spoiled, or otherwise unwholesome food, drink, drug, or medicine, with intent to permit the same to be eaten or drunk, is a misdemeanor.

Imitation butter.—Any manufacturer of an article, in imitation of butter, not made exclusively from milk or cream must distinctly stamp or mark it "Oleomargarine" in letters not less than one-fourth of an inch square. Retailers selling such articles must deliver to each purchaser similar printed labels. Wholesale or retail dealers in such articles must post conspicuously printed notices, "Oleomargarine sold here," in letters not less than 2½ inches square. Hotel and boarding-house keepers, etc., serving oleomargarine must inform each guest or customer that the article is not genuine. Violators of the law are guilty of a misdemeanor. (Penal Code, secs. 622, 623-624.)

ARKANSAS.

Unwholesome food.—The law prohibits the sale of deteriorated or diseased or decayed meat, vegetables, or provisions, without making the same fully known to the purchaser, or of the flesh of any animal dying otherwise than by slaughter, or of any animal slaughtered when diseased, or of the meat of any calf which was killed before 6 weeks old. Penalty not exceeding \$500 or imprisonment not exceeding 6 months. (Acts of 1893, ch. 161.)

Imitation butter.—Butter substitutes and adulterated butter, not made wholly from milk or cream, shall have the words "Adulterated butter," "Oleomargarine," or "Butterine," or such other name as shall properly describe it, marked in

letters not less than 1 inch in length upon the top and side of every package. Retail dealers are similarly required to label the outside wrapper of each package sold in printed letters not less than one-half inch in length. It is also unlawful to remove or deface labels or to change the contents of packages. Penalty, \$50 to \$500. Hotel and restaurant or boarding-house keepers who serve butter substitutes shall have the dish holding it similarly marked. Violators of this provision are fined \$5 to \$100. (Acts of 1885, ch. 127.)

CALIFORNIA.

FOODS GENERALLY.

Adulteration of food and drugs.—The adulteration of any article of food or of any drug, or the sale of such adulterated articles, is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopœia, or of such other pharmacopœia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold, if not injurious to health, if containing all necessary and no unnecessary ingredients, and if distinctly labeled as such. Every person manufacturing or selling any drug or article of food shall furnish anyone interested, on request and payment, with a sample sufficient for analysis. Penalty for violation, \$25 to \$100, or imprisonment 30 to 90 days, or both, together with costs of inspection and analysis. (Statutes of 1895, ch. 76.)

Honey.—No person shall sell honey extracted by bees from natural sources and adulterated with glucose or any other substance, nor any article as honey which is not the natural product of the bee. Penalty, \$100, or imprisonment 3 months, or both. (Statutes of 1895, ch. 104; Statutes of 1897, ch. 15.)

Olive oil.—Every person who manufactures imitation olive oil must label each bottle or other container with the words "Imitation olive oil" in large type and with his name and the names and percentages of the ingredients. It is unlawful to forward, sell, or have in possession imitation olive oil not so marked. Retail purchasers must be informed of the character of the imitation and must be furnished a statement or label. No person shall sell oil manufactured out of the State as manufactured within the State. The State board of horticulture and the State analyst shall enforce the law. Penalty, \$100 to \$500, or imprisonment 30 days to 6 months, or both. (Statutes of 1893, ch. 177.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of adulterated or unwholesome milk, or of milk drawn from cows having such diseases as cause them to become feverish, or from cows within 15 days before or 5 days after parturition. Penalty, for first offense, \$25 to \$50, or imprisonment 25 to 50 days; for subsequent offenses, \$50 to \$100, or imprisonment 50 to 100 days, or both.

The State dairy bureau is empowered to inspect dairies and creameries and to require them to be put into sanitary condition. It is required to take prompt measures to suppress any contagious disease affecting dairy cattle. Whenever in the judgment of the veterinary surgeon of the State it is necessary, animals may be slaughtered to protect the public health. (Statutes of 1897, ch. 75.)

Cheese.—Cheese manufactured from pure milk and containing not less than 80 per cent of butter fat is considered "full-cream cheese;" if made from pure milk and containing 15 per cent of butter fat, it is "half-cream cheese;" and if made from pure skimmed milk, it is "skimmed cheese." All cheese shall be thus branded according to its true quality with brands furnished by the State dairy bureau. Penalty, same as in case of milk. (Statutes of 1897, ch. 76.)

Imitation butter and cheese.—No article made in imitation of butter or cheese, and containing any fat or oleaginous substance not produced from unadulterated milk, shall be manufactured or sold, unless on each package is marked the words "Substitute for butter" or "Substitute for cheese," together with the name and location of the manufacturer and the names and percentages of the various ingredients. Every person having possession of imitation butter or cheese is presumed to know that it is imitation. No person shall ship and no common carrier shall

receive any unmarked imitation. Keepers of hotels and boarding houses must notify their guests if such imitations are used, and no such imitations are permitted in any charitable or penal institution receiving assistance from the State. Penalty, for first offense, \$50 to \$150, or imprisonment not over 30 days; for subsequent offenses, \$150 to \$300, or imprisonment 30 days to 6 months.

Dairy bureau.—The governor is to appoint 3 citizens who have had practical experience in the dairy business as a dairy bureau to enforce this and other similar acts. (Statutes of 1897, ch. 75.)

Process butter.—No person shall manufacture or sell any butter made by boiling, melting, or renovating stale or decomposed butter in such a way as to make it resemble pure butter, unless the package containing it shall be marked, in letters not less than one-half inch long, with the words "Process" or "Renovated" butter. (Statutes of 1899, ch. 25.)

COLORADO.

FOODS GENERALLY.

Adulteration of food and drugs.—It is unlawful to adulterate any article of food or any drug, or to sell such adulterated articles, or to mix, color, or powder any article of food or drug so as to make it injurious to health or to injure its quality. Articles which are thus mixed, colored, or powdered, but not rendered injurious, may be sold under their true name, with the notice of their mixture or impurity properly marked upon them, and with notice to each purchaser. Penalty, fine not over \$300, or imprisonment not over 1 year. (Laws, 1893, p. 392, secs. 61-65; compare Laws, 1887, p. 16, secs. 3-5.)

Liquors.—It is unlawful to adulterate spirituous liquors with any poisonous or injurious substance, or to import such adulterated liquors, or to sell them. The adulteration of vinous or malt liquors is also prohibited. Each package of vinous or malt liquors shall be stamped with the manufacturer's name and with the appropriate name of the contents, together with the word "Pure." Penalty, \$100 to \$300, or imprisonment not over 6 months, or both. (Laws, 1887, p. 18; Laws, 1895, p. 203.)

Glucose.—No person shall mix glucose with sirup, honey, or sugar without marking on each package its true name and the percentage of glucose, nor shall such mixtures be sold without notice to the buyer of their character. Penalty, \$50, or imprisonment not over 3 months. (Laws, 1893, p. 393, sec. 66.)

Unwholesome food.—It is unlawful to sell the flesh of any diseased animal or of any animal dying otherwise than by slaughter, or any provisions whatever which are decayed or injured. Penalty, not over \$1,000, or imprisonment not over 2 years, or both. (Laws 1887, p. 15; compare 1893, p. 392, sec. 60.)

DAIRY PRODUCTS.

Milk.—It is unlawful to sell milk adulterated with water or any foreign substance, or milk drawn from diseased cows or otherwise unwholesome, or milk from cows fed upon garbage or upon any substance in a state of fermentation or otherwise deleterious. Milk from which cream has been taken or from which strippings have been withheld may be sold only with notice to the purchaser. Any county, city, or town may appoint a milk inspector to enforce the law. Penalty, not over \$500, or imprisonment not over 1 year, or both. (Laws, 1887, p. 15, sec. 2; Laws, 1893, p. 394, secs. 69-72.)

Butter and cheese.—It is unlawful to manufacture or sell any article not produced wholly from unadulterated milk or cream in imitation of cheese or yellow butter; but oleomargarine may be sold in a separate form, free from coloration or ingredient which causes it to look like butter. It is also unlawful for hotel keepers, public or private schools, or charitable or penal institutions to furnish imitation butter or cheese to their guests or inmates.

Branding of cheese.—The State dairy commissioner shall furnish uniform stencils for branding cheese. Cheese containing 35 per cent of butter fat in comparison with the total solids shall be branded "Colorado full-cream cheese," that containing less fat shall be branded "Skimmed cheese," and cheese into which foreign fats or impure butter have been introduced shall be branded "Imitation cheese." Penalty for violation, \$100 to \$500, or imprisonment not exceeding 1 year.

Dairy commissioner.—The governor shall appoint a dairy commissioner, who shall hold office for 2 years and receive \$1,200 a year. He may employ assistants, and they, together with inspectors of milk, may enter any place to take samples for analysis. An appropriation of \$2,000 yearly is made for the enforcement of the law. (Laws, 1895, ch. 19.)

CONNECTICUT.

FOODS GENERALLY.

Adulteration of food.—The law prohibits the manufacture or sale of any article of food or drink, used by man or cattle, which is adulterated or misbranded. An article is deemed adulterated if any substance be mixed or packed with it so as to reduce or injuriously affect the quality or strength, if any inferior substance is substituted in it; if any valuable constituent has been abstracted; if it be imitation and sold under the name of another article; if it is colored, coated, polished, or powdered whereby damage is concealed, or if it is made to appear of greater value than it is; if it contains poisonous ingredients; or if it contains antiseptics not evident to the purchaser. Mixtures under their own names, or articles labeled so as to show clearly that they are mixtures are excepted, as well as those to which any ingredient is added, necessarily and not fraudulently, in preparation or as an article of commerce.

Drugs.—Every person who shall adulterate or mix a foreign substance with a drug or medicinal preparation, so as to weaken its medicinal effect, or shall sell such drug, shall be fined not less than \$10 nor more than \$100. (Gen. Stats., 1888, sec. 3129.)

Enforcement.—The State agricultural experiment station shall make analysis of all suspected food products procured by its agents or the dairy commissioner, and if it finds that an adulterated product has been on sale, the dairy commissioner shall transmit the facts to the grand jury or prosecuting attorney of the town in which the product was found. The experiment station may adopt standards for articles where standards are not specified by law. The proper officers are granted access to any suspected place and right to compel samples to be sold to them. Penalty, not more than \$500, or 1 year imprisonment. (P. Laws, 1895, ch. 235; amended by P. Laws, 1899, ch. 23.)

Vinegar.—No person shall make as cider vinegar any vinegar not produced wholly from apples, or shall add to any vinegar any drug, hurtful or foreign substance, or any coloring matter or acid. Vinegar must have an acidity equivalent to not less than 4 per cent of absolute acetic acid, and cider vinegar must not contain less than 2 per cent of cider vinegar solids. Every maker must brand or paint upon each package his name, place of manufacture, and the true kind of vinegar contained. No person shall sell or receive an order for the sale or delivery of vinegar not conforming to these same requirements.

The dairy commissioner is charged with enforcing the law and has the usual powers of entering, taking samples, and analyzing. If vinegar be found adulterated, the proper local prosecuting officer must bring suit. Penalties: For manufacturers, \$50 for first offense; \$100 and imprisonment 30 days for second offense; for dealers, \$10 and \$50, respectively. (P. Laws, 1897, ch. 67.)

Molasses.—No person shall adulterate molasses with salts of tin, terra alba, glucose, dextrine, starch, sugar, corn sirup, or other preparation of starch, or shall sell or receive orders for such adulterated molasses. Penalty \$500 or 1 year imprisonment, or both.

The dairy commissioner shall have charge of the enforcement of the law. He shall have access to all suspected places, and may take samples and have them analyzed by any State chemist. If the molasses is adulterated, he shall make complaints to the local prosecuting officer. (P. Laws, 1889, p. 148, ch. 238.)

Sugar.—A special provision prohibits the adulteration of sugar with various enumerated substances. (Gen. Stats., sec. 2650.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. Penalty not more than \$100. (P. Laws, 1895, ch. 183.)

DAIRY PRODUCTS.

Milk.—It is unlawful to sell milk adulterated with water or any foreign substance, or from which cream or strippings have been withheld. Skimmed milk may be sold if each can or package is marked "Skimmed milk," in letters not less than 1 inch long. The law also prohibits the bringing of sour or tainted milk to a butter or cheese factory, or the sale of milk from a cow affected with tuberculosis or other blood disease. Penalty, \$25 to \$100. (Gen. Stats., secs. 2658-2664.)

Imitation butter.—Any article in semblance of butter, not made wholly from the milk of cows, shall be deemed imitation, and the words "butter," "dairy," "creamery" shall not be used in describing it. No person shall manufacture or sell a product or compound in imitation of yellow butter. The sale of oleomar-

garine is permitted under the following conditions: It must be free from all coloration. The seller must maintain in plain sight over the entrance to his premises a sign, to be furnished by the State dairy commissioner, with a notice in plain letters not less than 4 inches long that imitation butter is sold. Delivery wagons used in handling imitation butter must be so marked. No baker or seller of food shall sell any article containing imitation butter unless he maintains a similar sign. Keepers of hotels, boarding houses, etc., who use imitation butter must post a sign to that effect in sight of all guests. Packages containing imitation butter must be marked on the outside and on the cover, in letters not less than 2 inches long, with the true name. The seller must orally inform each buyer of the character of the article. Every person selling or serving to guests imitation butter must register his name and place of business in a book kept by the dairy commissioner.

Railroad and express companies are required to furnish the dairy commissioner on request with details regarding any consignment of imitation butter.

When tub imitation butter is sold in the form of bricks or balls, each such package must be labeled with its true character.

Boarding-house keepers violating the act are subject to a fine of \$25 or imprisonment not over 30 days, or both, for the first offense. Other violators of the law may be fined not more than \$100 or imprisoned not more than 60 days, or both, for the first offense. The penalties are doubled for subsequent offenses. (Gen. Stats., secs. 2614-2619, as amended by Laws of 1898, chap. 114, and L. 1895, ch. 32.)

Dairy commissioner.—The governor is to appoint a dairy commissioner, who shall hold office for 2 years; he may appoint a deputy. These officers are to enforce the law, and have the right of access to places where they suspect imitation butter to be made or sold; they may take samples for analysis by the State experiment station. (Ibid.)

DELAWARE.

Candy.—It is unlawful to manufacture or sell candy adulterated with terra-alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. (Laws, 1899, ch. 267.)

Imitation butter.—The law prohibits the manufacture or sale of any article in imitation of butter which contains fat or oleaginous substance not made from unadulterated milk or cream. Oleomargarine may be sold in such a manner to advise the consumer of its character, being free from coloration, and marked with its true name by a placard with letters not less than 1 inch long on the exposed surface of every open package. Penalty, \$50 to \$250 or imprisonment not exceeding 1 year. Any justice of the peace may on complaint issue a warrant to inspect suspected places, and the officer may take samples, leaving one with the person in charge of the place and forwarding the other to the State chemist. The chemist shall analyze the sample and notify the State attorney-general as to the result. In case of failure to convict, the costs are paid by the county. (Laws, 1895, chap. 209.)

DISTRICT OF COLUMBIA.

Adulteration of food and drugs.—The adulteration of any article of food or of any drug, or the sale of such adulterated article, is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopoeia, or by such other pharmacopoeia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health.

The law also contains specific definitions as to the standards of milk, cream, butter, coffee, lard, tea, vinegar, spices, wines, fruit juice, malt liquors, glucose, flour, bread, and olive oil.

Foods of an inferior quality may be sold if the order calls for such quality, and it is not deemed adulteration to mix harmless materials with no intent of fraud if the fact of mixture is made known to the purchaser.

The enforcement of the law is under the direction of the health officer of the District of Columbia. The representatives of his office may demand samples of any goods offered for sale upon payment. (Stats. U. S., 1896, chap. 25.)

Milk.—Every dairy must secure a permit from the health officer of the District, and he is required to secure proper water supply, drainage, ventilation, and cleanliness, and to see to it that cattle suffering from contagious diseases are isolated. No person who is suffering from dangerous contagious disease, or who has knowingly been exposed to it, shall work in a dairy. All persons selling milk must keep the names of the dairymen furnishing it conspicuously posted.

No adulterated or unwholesome milk shall be sold; nor milk which contains less than 9 per cent of solids, not fat, and $8\frac{1}{4}$ per cent of fat; nor cream which contains less than 20 per cent of butter fat. Skimmed milk must contain at least 9.3 per cent of solids, and must be distinctly marked on the container "Skimmed milk."

Penalty for first offense, \$5 to \$25 or imprisonment not over 30 days, with higher penalties for subsequent offenses. (Stats. U. S., 1895, chap. 164, as amended by Stats., 1898, chap. 25.)

FLORIDA.

Adulteration of food.—It is unlawful to adulterate for sale or offer for sale a food substance adulterated with any article injurious to health. Penalty, imprisonment not over 1 year or fine not over \$300.

Unwholesome food.—The sale of tainted or unwholesome food or drink, without making its character known to the buyer, is subject to imprisonment not over 6 months and fine not over \$200. The sale of veal from any calf killed under the age of 4 weeks is punishable by fine not over \$200.

Adulterated drugs.—The adulteration of any drug or medicine or the sale of such adulterated article is subject to fine not exceeding \$400 or imprisonment not over 1 year. Registered pharmacists guilty of the offense shall be stricken from the register.

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. (Laws, 1897, No. 32.)

Adulterated liquors.—It is unlawful to adulterate liquors intended for drink with cocculus indicus, vitriol, or other enumerated drugs, or with any injurious or poisonous substance. Penalty, imprisonment not over 3 years.

Imitation butter.—A person who sells as butter any spurious preparation, or a hotel or boarding-house keeper who offers such a preparation to his guests without giving notice of the fact, is subject to imprisonment not over 30 days or fine not over \$100.

(Rev. Stats., secs. 2659-2668).

GEORGIA.

FOODS GENERALLY.

Adulterated food.—It is unlawful to offer for sale an adulterated article of food or drink unless each package has a correct analysis attached, and unless notice of the fact of adulteration is given to each purchaser. Violation of the act is a misdemeanor. The enforcement is charged upon the grand jurors of the counties. (Penal code, sec. 468.)

Unwholesome food.—It is a misdemeanor to sell unwholesome provisions of any sort, or adulterated liquor, or the flesh of a diseased animal. (Penal code, secs. 466, 467.)

Adulterated drugs.—It is unlawful to adulterate any drug or medicine. A drug is deemed adulterated which does not correspond to the standard of the United States Pharmacopœia, or of any other standard work by which it is recognized, or if it falls below its own professed standard. The State board of pharmacy is to enforce the law and has authority to take samples. (Penal code, 1895, secs. 482-484.)

Adulteration of wine.—It is unlawful to sell as "domestic wine" wine compounded from chemicals or otherwise, and not produced exclusively from grapes or other fruit grown in the State. (Laws, 1890-1891, p. 190; approved October 16, 1891.)

Candy.—It is a misdemeanor to adulterate candy with terra alba, barytes, talc, or any other mineral substance, or with poisonous colors or flavors or other injurious ingredients. (Laws of 1896, p. 84; approved December 24, 1896.)

DAIRY PRODUCTS.

Imitation butter and cheese.—Any article in the semblance of butter or cheese not produced wholly from pure milk or cream is declared imitation. No person shall mix animal fat or vegetable oil with butter or cheese, or shall color in any

way a mixture of such fats and oils so as to make it resemble genuine butter or cheese. No person shall sell imitation butter or cheese unless it be marked on the top and side of each package, in printed letters not less than 1 inch high, "Substitute for butter" or "Substitute for cheese;" nor have in his possession such a substitute not properly marked. Each retail purchaser must be given a printed statement that the article is imitation, with the name and address of the producer. Hotel and boarding-house keepers, etc., who serve imitation butter or cheese shall keep constantly posted conspicuously a card to that effect, printed in letters not less than 1 inch high. The violation of this act is a misdemeanor. (Laws of 1895, p. 68; approved December 16, 1895.)

Milk.—The law prohibits the sale of unwholesome or adulterated milk, or milk from which the strippings have been held back, or milk from an animal having any disease. Buttermilk and skimmed milk may be sold as such only. The standard of milk is $3\frac{1}{4}$ per cent of butter fat and $8\frac{1}{4}$ of other solids. (Laws of 1895, p. 66.)

IDAHO.

Adulteration of food.—The adulteration or dilution of any article of food or drink or of any drug, or the offering for sale of such an adulterated article as though pure, is a misdemeanor.

Unwholesome food.—It is unlawful to offer for sale an article of food or drink or drug which is tainted, spoiled, or otherwise unwholesome, or to offer for sale any animal that has been confined for 48 hours or more without proper food or for 24 hours without water. (Revised Statutes, 1887, secs. 6918-6920.)

Imitation butter.—The manufacture and sale of oleomargarine, butterine, and adulterated butter are permitted only when marked as such. The sale of these articles as butter, or without being marked, is considered a misdemeanor. (Revised Statutes, 1887, sec. 6917.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. (Laws of 1899, p. 898.)

Vinegar.—It is unlawful to manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredients, or cider vinegar which is not the legitimate product of pure apple juice. All vinegar, except cider vinegar, shall have an acidity equal to 4.5 per cent of acetic acid, and cider vinegar shall contain not less than 2 per cent of cider vinegar solids. Every barrel of vinegar must be conspicuously marked with the name and the place of business of the manufacturer, the kind of vinegar, and the percentage of acetic acid. Violation of the law is a misdemeanor. (Laws of 1899, p. 368.)

Imitation butter.—It is unlawful to coat or color with annatto or otherwise any substance designed as a substitute for butter in such a way as to make it resemble butter, or to compound foreign fats with butter for the same purpose. It is unlawful to sell imitation butter made in violation of this provision. Lawfully manufactured substitutes shall be marked on the top and side of each package, showing their true character, in letters not less than three-fourths of an inch long. Each retail purchaser must be informed of the character of the article. (Laws of 1899, p. 392.)

ILLINOIS.

FOODS GENERALLY.

State food commissioner.—The governor is to appoint a State food commissioner, whose term of office is 4 years and salary \$2,500. The commissioner may appoint one assistant, who shall be an expert in dairy products, and another known as the State analyst. The salaries of each are \$1,800. Not over 6 inspectors may be appointed. The food commissioner is to enforce all laws relating to foods and dairy products and to prosecute violations through the prosecuting attorneys of counties, whose duty it is to render all possible assistance. The inspectors are given power to enter any dairy, store, or other place where foods are kept, and to open any package and to take samples. They shall mark and seal each sample in the presence of the person in charge, offering him its value, and shall on request furnish him a duplicate sealed sample. Samples thus taken shall be analyzed by the State analyst, and the State board of health may also submit to him samples for examination. The State analyst is forbidden to furnish any person a certificate as to the purity or excellence of an article of food. The commissioner may distribute to the newspapers a monthly bulletin containing the results of his inspections.

Adulterated food.—It is unlawful to manufacture for sale or to offer for sale any food which is adulterated. An article is deemed adulterated if any substance

has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it is coated, powdered, or otherwise made to appear of greater value than it really is; if it contains an added substance injurious to health; if it contains any decomposed, tainted, or unwholesome animal or vegetable substance, or if it is the product of an animal which has died otherwise than by slaughter. A compounded article which does not contain injurious ingredients, if sold under a distinct name and so labeled as to plainly indicate that it is a mixture, shall not be deemed adulterated. Manufactured articles of food must be marked with the name of the manufacturer or dealer and his place of business.

Vinegar.—No vinegar shall be sold as cider vinegar which is not the product of pure apple juice and which does not contain $1\frac{1}{4}$ per cent of cider vinegar solids. All vinegar made by fermentation shall be branded with the fruit or substance from which it is made, and shall contain not less than $1\frac{1}{4}$ per cent of solids contained in the fruit from which it is made, nor less than $2\frac{1}{4}$ tenths of 1 per cent of mineral matter. Vinegar made from distilled liquor shall be branded "distilled vinegar." All vinegar shall be made wholly from fruit or grain, shall contain no foreign substance, and shall contain not less than 4 per cent of acetic acid. The manufacture or sale of vinegar containing lead, mineral acid, or other ingredient injurious to health is unlawful. Each package containing vinegar shall be marked with the name and place of business of the manufacturer or dealer.

Ice.—It is unlawful to sell ice containing any decomposed or tainted animal or vegetable substance or other injurious ingredient. The water contained in ice must be up to the standard of purity of water for domestic purposes.

Candy.—It is unlawful to adulterate candy with terra alba, barytes, talc, or other mineral substance, or with poisonous colors or flavors, or other injurious ingredients. Violation a misdemeanor.

Canned fruits and vegetables.—No packer or dealer in canned fruits and vegetables shall sell such articles unless they are free from injurious substances, and unless they are marked with the name and address of the packer or dealer. All soaked or bleached goods put up from products dried before canning shall be so plainly marked.

Fruit jellies and jams.—It is unlawful to manufacture or sell as genuine any compound containing glucose, dextrine, or other foreign substance and colored in imitation of fruit jelly or jam. Every package containing such compounds shall be labeled "imitation," with the name and address of the manufacturer or dealer, and shall be free from harmful ingredients.

Extracts, chocolate, etc.—Flavoring extracts containing more than one principle must be labeled with the name of each or with the name of the inferior principle. Extracts which must necessarily be made artificially shall be labeled "artificial." The ingredients which may be used in prepared chocolate, cocoa, and cocoanut are defined in the law.

Penalties.—Whoever shall falsely brand a product covered by the preceding provisions, or shall remove or deface a brand, or shall violate any of the provisions of the act, is subject to a fine of \$25 to \$200, or imprisonment not exceeding 90 days, or both. The taking of orders or the making of contracts for the future delivery of any article is deemed a sale.

(Laws of 1899, p. 868; approved April 24, 1899.)

Lard.—No article which contains any ingredient except pure fat of swine shall be sold under the label "pure," "refined," or "family," or unless each package is marked "compound lard" in letters not less than one-half inch long. Penalty, \$20 to \$50 for first offense; subsequent offenses, \$75 to \$200. (Laws, 1889, p. 111; approved June 8.)

Veal.—The law prohibits the killing of any calf less than 4 weeks old, or the sale of its flesh for food. Penalty, \$25 to \$50 or imprisonment not over 90 days, or both. (Laws, 1887, p. 307; approved June 16.)

DAIRY PRODUCTS.

Milk.—It is unlawful to sell milk adulterated with water or any foreign substance, or from which the cream has been taken, without informing the purchaser of the fact, or from which the strippings have been withheld, or milk drawn from a diseased cow or milk so tainted or corrupted as to be unwholesome; or to deliver such milk to any cheese or butter factory without informing all concerned of the fact. The law also prohibits taking any part from milk, after delivery to a cheese or butter factory for manufacture on account of the person supplying it, or adding any foreign substance to it by which it shall become unwholesome. It is unlawful to keep cows in an unhealthy condition or to give them food that produces unwholesome milk. In cities skimmed milk may be sold only in cans

plainly marked as such. The milk standard is 12 per cent of milk solids and 8 per cent of butter fat. Each retailer of milk in cities must have every can and every vehicle marked with his name and the locality where the milk is produced. Different penalties are imposed for various classes of violations. (Rev. Stats., 1898, ch. 38, secs. 207a-207f, passed in 1879 and 1881; Laws of 1897, p. 268.)

Butter and cheese.—It is unlawful to color or powder any substance designed as a substitute for butter in such a way that it shall resemble pure butter, or to combine animal fat or similar substances with butter so as to make the product resemble genuine yellow butter. The sale of such a prohibited imitation is also unlawful. Manufacturers of substitutes for butter shall distinctly mark each package "oleomargarine" or some similar prescribed phrase, in letter not less than three-fourths of an inch long. Retail sellers of imitation butter must inform each purchaser as to its character. No person shall ship or forward or have in possession, except for family use, imitation butter not properly marked. Penalty, \$50 to \$200, or imprisonment not over 60 days, or both. (Law of 1897, p. 8.)

Another law prohibits the manufacture or sale as butter or cheese of any product not made exclusively from unadulterated milk or cream. Penalty, \$25 to \$200. (Laws of 1881, p. 74.)

No person shall mix oleomargarine or any other foreign substance with butter or cheese without distinctly marking on the package the true names and percentages of the constituents, and no person shall sell such a compound without informing the buyer as to its composition. Penalty for first offense, \$25 to \$200; for second offense, \$100 to \$200, or imprisonment 1 to 6 months, or both. State attorneys are charged with the enforcement of the law. (Laws of 1881, p. 75.)

INDIANA.

FOODS GENERALLY.

Adulteration of food and drugs.—The adulteration of any article of food or of any drug, or the sale of such an adulterated article, is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopoeia or by such other pharmacopoeia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if an inferior substance has been substituted in it; if a valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains an added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, if containing all necessary and no unnecessary ingredients, and if distinctly labeled as such.

Enforcement.—The State board of health and the State health officers are directed to enforce this law. The State board shall adopt rules for carrying it out, and State, county, and local health officers shall act as inspectors. Every manufacturer or dealer is required to furnish to proper officers a sample of any article on receipt of its value.

Penalty for violation of the act, fine not over \$100. Adulterated articles shall be forfeited and destroyed under the direction of the court. (Laws of 1899, chap. 121.)

Adulterated liquors.—This act provides further that the adulteration of liquor intended for drink, or the sale of such adulterated liquor, shall be subject to a penalty of not less than \$100 nor more than \$500, the adulterated article to be forfeited.

Adulteration of vinegar.—It is unlawful to sell as cider vinegar an article not the legitimate product of pure apple juice or containing any foreign substances. All vinegar shall be free from lead, copper, sulphuric acid, or other injurious substances or artificial coloring matter. All vinegar shall have an acidity equal to not less than 4 per cent of absolute acetic acid, and cider vinegar shall contain in addition not less than 2 per cent of cider vinegar solids. No vinegar shall be branded as fruit vinegar unless it is made exclusively from some fruit. Every person making cider vinegar who is not a domestic manufacturer thereof shall brand on each cask or package his name and residence, the date of manufacture, and the words "cider vinegar." (Horner's Rev. Stats., 1897, secs. 6610, 6611.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. (Laws of 1899, ch. 156.)

Unwholesome food.—The law prohibits the sale of diseased or unwholesome provisions, or of provisions purporting to be other than what they are, or of meat from any calf killed before the age of 4 weeks. Penalty, \$10 to \$500, to which may be added imprisonment 10 days to 6 months. It is unlawful to kill for the purpose of selling or to offer for sale meat taken from any diseased or injured animal. Penalty, \$50 to \$500, to which may be added imprisonment not more than 6 months. (Horner's Rev. Stats., secs. 2069, 2070.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk diluted with water or otherwise adulterated, or from which the cream has been taken, or from which the strippings have been withheld, or of milk which is the product of a sick animal, or of an animal fed upon distillery or brewery refuse or upon any injurious substance. Penalty, \$50 to \$500. (Horner's Rev. Stats., 1897, sec. 2071.)

Oleomargarine.—Whoever sells or keeps at any hotel or boarding house imitation butter not made from pure milk or cream without labeling it "oleomargarine," in large letters, shall be fined not less than \$10 nor more than \$50. It is unlawful to use any injurious material in the manufacture of cheese or butter. Penalty, \$50 to \$500, (Horner's Rev. Stats., 1897, secs. 2190-2191.)

IOWA.

FOODS GENERALLY.

Adulteration of food.—The law prohibits the adulteration of any substance intended for food or drink. Penalty, imprisonment not over 1 year or fine not over \$500. (Rev. Stats., sec. 4980.)

More detailed sections provide that no person shall mix, color, stain, or powder an article intended for food or drink with any ingredient, whether injurious to health or not, for the purpose of gain. It is also unlawful to sell such an adulterated article unless the purchaser is informed as to its true character, and unless each package is properly marked. Penalty for first offense, \$10 to \$50; second offense, \$25 to \$100, or imprisonment 30 days; subsequent offenses, \$500 to \$1,000 and imprisonment 1 to 5 years. (Rev. Stats., secs. 4984-4988.)

Adulterated drugs.—The law prohibits the adulteration of any drug or medicine in such a way as to lessen its efficiency, change its operation, or make it injurious, or the mixing, coloring, staining, or powdering of any drug or medicine so as to affect it injuriously. Knowingly to sell such adulterated drugs is also prohibited, and registered pharmacists are held responsible for the quality of all drugs sold except those in the original packages and patent medicines. The law does not apply to necessary mixing in compounding of drugs and medicines. Penalty, imprisonment not over 1 year or fine not over \$500. (Rev. Stats., secs. 2592, 4983, 4985.)

Unwholesome food.—It is unlawful to sell diseased or unwholesome provisions without making their character known to the buyer. Penalty, imprisonment not over 30 days or fine not over \$100. (Rev. Stats., sec. 4981.)

Glucose.—It is unlawful to mix glucose or grape sugar with sirup, sugar, or any other article without distinctly marking the product with the true percentage of such adulteration, or to sell such an adulterated article without informing the buyer as to its true character. Penalty, same as for adulterated food generally. (Rev. Stats., sec. 4987.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. (Laws of 1896, ch. 112.)

Canned goods.—Every can of fruit or vegetables packed or sold in the State must bear the name and place of business of the packer or wholesale dealer, together with a term indicating accurately the quality of the contents.

"Soaked" goods or goods put up from products dried before canning must be plainly marked "soaked" in letters not less than one-half inch high. Penalty for violation, \$50 for retail dealers, \$500 to \$1,000 for wholesale dealers or packers. (Rev. Stats., secs. 4994-4997.)

Adulterated lard.—Lard rendered from swine which have died from disease must be so plainly marked on each package, or if sold without package the purchasers must be informed of its character. Penalty for violation, \$5 to \$10, or imprisonment not over 30 days. It is unlawful to manufacture or sell lard containing any ingredients except the pure fat of healthy swine, in a package bearing the words "pure," "refined," or "family;" or unless each package is labeled

in letters not less than one-half inch long with the words "compound lard," and the proportions of the ingredients. Penalty, \$20 to \$50 for first offense; \$50 to \$100 for subsequent offenses. (Rev. Stats., secs. 4993-4994.)

DAIRY PRODUCTS.

State dairy commissioner.—The governor shall appoint a dairy commissioner having practical knowledge of the business, for a term of 2 years. It shall be his duty to enforce the laws relating to dairy products, to furnish tests for milk, etc.

Milk.—It is unlawful to sell or deliver impure or adulterated milk, or milk from which the strippings have been withheld, or milk taken from animals having disease; but skimmed milk may be sold as such. It is also unlawful to keep cows used for dairy purposes in an unhealthy or crowded stable, or to feed them food which produces unwholesome milk, such as distilled glucose or brewery waste. The addition of water or any substance to milk is deemed adulteration. Milk containing less than 8 per cent of butter fat or 12½ per cent of milk solids is deemed skimmed or adulterated. The standard for cream is 15 per cent of butter fat. Penalty, \$25 to \$100 and liability for double damages to the person against whom the fraud is committed.

Every person selling milk or cream from a wagon or store must obtain a written permit from the State dairy commissioner, and shall pay annually for each wagon or store a fee of \$1. Milk dealers and persons operating creameries, cheese factories, or dairies shall keep their premises clean and in a hygienic condition, and shall return from time to time to the dairy commissioner such reports and statistics as may be required. The State dairy commissioner shall furnish to creameries and cheese factories proper test tubes, pipettes, and other instruments for testing the quality of milk. The commissioner may appoint agents in any city having over 10,000 inhabitants, who shall have power to collect samples.

Imitation butter and cheese.—Every article in imitation of pure butter not made exclusively from milk or cream is deemed imitation. Every article designed to be used in place of cheese and not produced exclusively from milk or cream is imitation cheese. No person shall manufacture, sell, take orders for, ship, or transport such imitation products not properly marked. Such articles, if not yellow, and not colored in imitation of butter or cheese, may be sold and transported if each package is marked distinctly with the words "substitute for butter" (or for cheese) in letters not less than 1 inch long. Keepers of hotels and boarding houses who use these imitations shall keep constantly posted before each table a notice to that effect. Each retail purchaser must be notified of the character of the article at the time, and must be furnished with a printed label, together with the name and place of business of the maker.

Any person having in his possession imitation butter or cheese, except for the use of his own family, is presumed to know its true character. The general provisions of law relating to search warrants and proceedings thereon may be applied in searching for imitation butter or cheese, and the officer serving the warrant shall deliver to the dairy commissioner for analysis a sample of the articles found.

Skimmed cheese.—Cheese manufactured from skimmed milk must be labeled as such on the top and side of cheese and package, with letters not less than 1 inch in height. Penalty, \$25 to \$100 and damages.

Penalties.—For violation of the acts relating to dairy products a fine may be imposed not exceeding \$500, or the offender may be imprisoned not over 6 months, or both penalties may be inflicted. (Rev. Stats., secs. 2515-2527, 4989-4991.)

KANSAS.

FOODS GENERALLY.

Adulteration of food and drugs.—The adulteration of any article of food or of any drug or the sale of such adulterated articles is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopoeia, or by such other pharmacopoeia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or

if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, if containing all necessary and no unnecessary ingredient, and if distinctly labeled as such.

Manufacturers or sellers of food or drugs must furnish to any person demanding it and tendering the value a sufficient sample of any article. Penalty for violation of law, \$25 to \$100 or imprisonment 30 to 100 days, or both, together with necessary costs and expenses incurred in inspecting and analyzing the adulterated articles. (Gen. Stats., 1897, secs. 327-331, passed in 1889. Compare less detailed provisions in secs. 324-326.)

Unwholesome provisions.—Any person selling diseased or unwholesome provisions without making their character fully known to the buyer may be imprisoned not more than 6 months or fined not over \$100. (Gen. Stats., sec. 324.)

Vinegar.—It is unlawful to manufacture or sell as cider vinegar any article not the product of pure apple juice. Every person manufacturing cider vinegar shall brand each package as such with his name and place of business. The law prohibits the manufacture or sale of vinegar containing lead, sulphuric acid, or other injurious ingredient. Penalty, \$50 to \$100. (Laws of 1891, ch. 1.)

DAIRY PRODUCTS.

Milk.—It is unlawful to sell to any person or to bring to a cheese or butter factory milk adulterated with water or other substance, or from which cream has been taken or from which the strippings have been withheld, or milk which is tainted or partly sour from want of proper care in keeping utensils after notification of such taint or carelessness. The law also prohibits the sale of milk from a diseased cow. Cheese and butter manufacturers are prohibited from taking cream from milk brought to them without the consent of the owners thereof. It is unlawful to use poisonous or injurious material in manufacturing cheese or butter. Penalty, \$25 to \$100 and double damages to the person injured. (Gen. Stats., 1897, secs. 322, 323.)

KENTUCKY.

Adulteration of food.—The adulteration or misbranding of any article of food or the sale of such adulterated or misbranded article is prohibited. The term "misbranded" is carefully defined. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted for it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter or the flesh of an animal which has died otherwise than by slaughter; if it is colored or otherwise made to appear better than it really is; if it contains an added poisonous or injurious ingredient or an antiseptic not evident to the consumer, or if it is falsely labeled as a foreign product or otherwise falsely labeled. Articles which are adulterated, but which contain no injurious ingredient, may be manufactured and sold if labeled "adulterated" or so as to show their exact character. Manufacturers of proprietary foods are not required to disclose their trade formulas, but baking powder must be labeled to show what acid salt has been used.

The director of the agricultural experiment station may approve a guaranty of purity issued by any manufacturer located in the State.

Enforcement.—The director of the experiment station is charged with the enforcement of the law. He may adopt standards where not fixed by statute. He may appoint inspectors who shall have access to places where it is suspected that adulterated articles exist, and who may take samples. State attorneys are required to prosecute at the request of the director. The experiment station may issue bulletins giving the results of analyses and similar facts. The total expense of enforcing the law is limited to \$7,500 yearly. (Laws of 1900, ch. 18.)

Vinegar.—All packages containing vinegar shall be so marked as to describe the process of manufacture and the material from which the vinegar is made, whether from fruit, malt, grain, or acid. Penalty for misbranding, \$25 to \$100. (Statutes of Kentucky, 1900, sec. 1282.)

Honey.—It is unlawful to sell any manufactured honey unless designated as such, or manufactured honey which contains any substance injurious to health. Penalty, \$10 to \$100 for first offense; \$50 to \$250 for subsequent offenses. (Ibid., sec. 1281.)

Canned goods.—Every can of fruit, vegetables, or other article of food shall be marked with the name and address of the packer or the dealer, and with an

indication of the grade or quality. "Soaked" goods shall be plainly marked as such in letters not less than 2-line pica size. Penalty, not less than \$50 for vendors; \$500 to \$1,000 for manufacturers. (Ibid., sec. 1283a.)

Lard.—The law prohibits the sale of any substance in imitation of lard not produced from the fat of healthy swine, unless plainly marked to show its true character. (Ibid., sec. 1283.)

Butter.—No person shall sell any compound in imitation of butter which is not made from pure milk or cream, unless each package be plainly marked to indicate its true character. (Ibid., sec. 1283.)

The general pure food law declares that oleomargarine and kindred compounds may be sold only in such form as to advise the consumer of their character, free from coloration or ingredient causing them to look like butter.

LOUISIANA.

Adulteration of food.—The manufacture and sale of adulterated food or drugs is subject to a fine of not over \$50 for the first offense and not over \$100 for subsequent offenses. Drugs are deemed adulterated if they fall below the standard of the United States Pharmacopoeia or their own proposed standard. Foods are adulterated if any substance has been mixed with them so as to lower their quality or strength, or if any inferior substance has been substituted in whole or in part; or if any substance has been mixed with them which will injuriously affect the health of the consumer or of the public. All packages containing drugs or provisions must be distinctly stamped or marked with the true name and quality of the contents. The manufacture or sale of such articles without a stamp is subject to a fine of \$25 or \$50, or to imprisonment of not more than 10 days, or both; while the sale of articles falsely stamped is subject to a fine not over \$100.

The State board of health shall enforce the act, shall make all necessary investigations, and shall analyze any article which it may deem wise and publish the result of the analysis. Every manufacturer or dealer must furnish samples on application. The board shall also analyze articles on the application of any citizen on payment of certain fees. (Acts of 1882, ch. 82.)

Unwholesome food.—It is unlawful to sell tainted provisions, stale vegetables, or other articles unfit for food, or to slaughter or to sell the flesh of an animal in an unhealthy condition. It is unlawful to discharge from a train or steamboat cattle or other animals in a diseased condition within 2 miles of a city. Penalty, \$35 or 8 months imprisonment for first offense, and \$50 or not less than 6 months imprisonment, or both, for subsequent offenses. (Acts of 1880, ch. 20.)

Glucose.—The law prohibits the sale of sugar or molasses adulterated with glucose or any foreign substance, unless so distinctly branded. Penalty, imprisonment not over 6 months and fine of \$200 to \$1,000. (Acts of 1886, ch. 49.)

Cleaning of rice.—The law prohibits the use of oil, paraffin, or any similar substance in cleaning rice for market for the purpose of bettering its appearance. (Acts of 1898, ch. 184.)

Adulterated candy.—The manufacture or sale of candies adulterated with terra alba, barytes, talc, or other earthy substance, or with poisonous colorations or flavors or other injurious ingredients, is a misdemeanor. (Acts of 1898, ch. 68.)

Adulterated butter.—The sale of any substance in imitation of butter is prohibited unless it be so labeled as unmistakably to indicate its true composition. Penalty, fine or imprisonment, or both. (Acts of 1886, ch. 81.)

MAINE.

FOODS GENERALLY.

Adulteration of food.—It is unlawful to adulterate an article of food or drink in such a way as to render it injurious to health. Penalty, imprisonment not over 5 years or fine not over \$1,000. (Rev. Stats., ch. 123, sec. 1.)

Unwholesome food.—It is unlawful to sell an article of food which is diseased or otherwise unwholesome without informing the buyer. The law prohibits the killing for sale of a calf less than 4 weeks old or the sale of its flesh. (Ibid.)

Vinegar.—It is unlawful to manufacture or sell as cider vinegar any article not the legitimate product of pure apple juice. Penalty, \$50 to \$100.

The manufacture or sale of vinegar containing lead, sulphuric acid, or other injurious ingredient, is punishable by fine of not less than \$100. Local authorities may appoint inspectors of vinegar. (Ibid., secs. 8-10.)

Sugar and molasses.—The adulteration of sugar or molasses with salts of tin, terra alba, glucose, or other enumerated substances, or the knowing sale of such

adulterated articles, is punishable by fine of not over \$1,000 or imprisonment not over 1 year. (*Ibid.*, sec. 7.)

Maple sugar.—No person shall manufacture or sell as maple sugar or syrup any article in imitation of pure maple sugar or syrup. Penalty, \$25 to \$100, or not over 30 days' imprisonment, or both. (Laws of 1895, ch. 118.)

Eggs.—It is unlawful to sell eggs that have been in cold storage, or limed, or that have been preserved in any manner, without notice to the purchaser. Penalty, fine not over \$100 or imprisonment not over 30 days. (Laws of 1895, ch. 99.)

Wheat meal.—No person shall manufacture, or sell, under the name of wheat meal, graham meal, or graham flour, any substance which is in imitation of pure wheat meal, not consisting exclusively of pure wheat meal, unless every package or wrapper bears, in letters one-half inch long, the words "compound wheat meal." Penalty, \$50. (Laws of 1889, ch. 257.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba or other mineral substances, or with poisonous colors or flavors, or other ingredients injurious to health, or candy containing brandy, whisky, or other alcoholic liquors in liquid form. Penalty, \$50 to \$100 and forfeiture of adulterated candy. It is the duty of prosecuting attorneys to enforce the law. (Laws of 1895, ch. 71.)

Lard.—The law prohibits the manufacture or sale of any compound not made from pure fat of swine under the label "pure," "refined," or "family," or unless every package is marked "compound lard" in letters half an inch long. (Laws of 1889, ch. 244.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk to which water or any foreign substance has been added, or of milk from diseased cows or from cows fed upon brewery or distillery waste or other deleterious substance. Milk from which cream has been taken must not be sold as pure. The milk standard is 12½ per cent of solids, including 3 per cent of fat.

Cities and towns shall annually appoint one or more milk inspectors, who shall inspect milk and take samples. Each inspector shall leave with the owner a sealed specimen of the milk of which he takes a sample.

Penalty for violation, \$20 for first offense and \$50 for subsequent offenses. (Rev. Stats., ch. 38, secs. 44-47, as amended by Laws of 1893, ch. 255, and Laws of 1897, ch. 292.)

It is unlawful for any person to hold for sale the meat or milk of any animal affected with tuberculosis or any other contagious diseases. Penalty, \$5 to \$50. If local boards of health suspect the existence of such disease they shall notify the State cattle commissioner. It is the duty of the owner of a diseased animal to notify the local board of health. (Laws of 1895, ch. 144.)

Imitation butter and cheese.—The law forbids the manufacture or sale of any article or compound, in imitation of yellow butter or cheese, not made exclusively from milk or cream. Penalty, \$200, one-third going to the complainant. Inspectors of milk and similar officers must enforce the law. (Rev. Stats., ch. 128, sec. 8, as amended by Laws of 1895, ch. 143.)

MARYLAND.

FOODS GENERALLY.

Unwholesome food.—No person shall sell diseased or unwholesome provisions of any kind for food. The act does not apply to green fruits or vegetables which spoil in transit. Penalty, not over \$500 or 1 year's imprisonment, or both.

Adulterated food.—No person shall mix or stain an article of food or drink with any other ingredient, or offer such an adulterated article for sale, unless its true name and the fact of such mixture be marked or stamped on each package, and unless each purchaser is notified of its character. If oleomargarine, lard, glucose, or other adulterants be mixed with any article, the package shall be marked with the name and percentage of the adulterant used. Persons purchasing such articles must be informed by the seller as to the true composition.

Glucose.—It is unlawful to mix glucose, grape sugar, or other adulterants with sugar, honey, or syrup; but such articles may be used in manufacturing candy.

Candy.—The law prohibits the manufacture or sale of candy adulterated with terra alba or other poisonous drugs or narcotics. Penalty, \$50 to \$500 for the first offense; \$500 to \$1,000 for the second offense; one-half to go to the informant. Persons injured by the sale of such candy may recover damages. Another law

makes it unlawful to adulterate candy or cakes with any injurious ingredient. Penalty, \$50 to \$500. (Laws of 1890, ch. 817; Public General Laws, art. 27, secs. 187, 188.)

Liquors and vinegar.—No person shall adulterate vinegar, wine, malt, or spiritous liquors with any injurious drug or substance, or shall sell such adulterated articles knowingly.

Penalty for violation of any of the provisions in the above paragraphs, a fine of not over \$500 or imprisonment not over 1 year.

Enforcement.—The State board of health is charged with the enforcement of the above provisions and is directed to take such steps as it deems necessary for that purpose.

Any officer designated by the board may at any reasonable time inspect articles of food exposed for sale and take samples. Whenever the board is satisfied that an article has been adulterated, it may prohibit its sale, or may destroy or otherwise dispose of it. The prosecuting attorney is bound to prosecute complaints under the law. Two thousand five hundred dollars is annually appropriated for enforcing the law.

(Laws of 1890, ch. 604; Public General Laws, art. 48, secs. 48-57.)

DAIRY PRODUCTS.

Milk.—A statute of 1900 prohibits the sale of milk which is adulterated or unwholesome, or the milk of a cow within 10 days before or 5 days after parturition, or from a sick cow, or from one fed on garbage or any substance in a state of fermentation or otherwise producing unwholesome milk, or from cows stabled near a house where there is infectious disease. The milk standard is 12.5 per cent milk solids, including 8.5 per cent butter fats. Skimmed milk may be sold only from cans so marked with letters 1 inch square. The use of chemical preservatives is specially prohibited. Penalty, not over \$100 or imprisonment not over 60 days, or both. (Laws of 1900, ch. 459.)

Imitation butter.—No person shall manufacture or sell any compound in imitation of yellow butter which is not produced wholly from pure milk or cream. Oleomargarine may be manufactured and sold in separate form, in such manner as to advise the consumer of its character, free from coloration or ingredients causing it to look like butter.

Persons selling oleomargarine must maintain a conspicuous sign to that effect. Hotel and boarding-house keepers, etc., and officers of public or private hospitals, schools, and penal institutions, using imitation butter, must maintain a sign to that effect, and must notify each guest or inmate orally. It is unlawful to sell an imitation to any person asking for butter. Various penalties are imposed for violation of this law. (Laws of 1900, ch. 496.)

Condensed milk.—No condensed milk shall be manufactured or sold unless it is made from pure and wholesome milk, from which no cream has been removed, and which conforms to the milk standard. The name of the manufacturer must be marked on each package.

Penalty, \$25 to \$100 or imprisonment 10 to 30 days for first offense, and higher penalties for subsequent offenses. (Laws of 1900, ch. 532.)

MASSACHUSETTS.

Adulteration of foods.—The adulteration of any article of food or of any drug or the sale of such adulterated articles is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopoeia, or by such other pharmacopoeia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, and if distinctly labeled as such, with the names and percentages of the ingredients.

Penalty for violation as regards foods, \$10 to \$100 for venders and \$100 to \$500 for manufacturers. (The law relating to foods is found in Laws of 1897, ch. 344; that relating to drugs is Laws of 1896, ch. 397.)

Unwholesome food.—It is unlawful to sell diseased or unwholesome provisions without making the fact fully known to the buyer. Penalty, not over \$200 or imprisonment not over 6 months. The law also prohibits the killing or the sale of the flesh of a calf under 4 weeks old, with the same penalty. (Public Statutes, 1882, ch. 208.)

Enforcement.—The State board of health, lunacy, and charity is to enforce the pure-food law. It may exempt articles, from time to time, from the provisions of the law, and may fix the limits of variability of any article not otherwise prescribed. It may appoint inspectors and chemists. Its officers have the usual powers of taking samples. (Laws of 1882, ch. 263.)

Adulteration of liquors.—A special provision prohibits the adulteration of liquors with certain enumerated drugs or other substances injurious to health. Penalty, imprisonment not over 3 years. (Public Statutes, 1882, ch. 208, sec. 4.)

Canned goods.—All canned goods must be distinctly marked with the name and address of the packer or dealer, and with the grade or quality. "Soaked" goods must be marked as such in letter not less than 2-line pica size. Penalty same as for foods generally. (Laws of 1897, ch. 344.)

Maple sirup and molasses.—All packages or cans containing maple sirup or molasses shall be marked with the name of the person preparing it, and the name and quality of the ingredients. (Ibid.)

Lard.—The law provides that the words "pure," "refined," "family" shall not be used in connection with the label on any lard which is adulterated with foreign fat or on any lard substitute, and every such article shall bear in prescribed type the label "compound lard." Violators of the act are punishable by fine. (Laws of 1887, ch. 449.)

Impure ice.—Cities are authorized to make ordinances to prevent the sale of impure ice. (Laws of 1895, ch. 838.)

DAIRY PRODUCTS.

State dairy bureau.—The governor appoints 3 members of the State board of agriculture to constitute a State dairy bureau; also an assistant to the secretary of agriculture to assist in enforcing the law. The secretary is the executive officer. The bureau may spend not over \$4,000 yearly in enforcing the laws relating to dairy products. Its officers have the usual rights of access and inspection of dairy products. (Laws of 1891, ch. 412.)

Milk.—Cities and towns may appoint milk inspectors. They shall record the names and places of business of all persons selling or delivering milk, and issue licenses to them. Each wagon must have the number of license, name, and place of business conspicuously posted. Each seller of milk from a store or booth must also be registered.

It is unlawful to sell milk adulterated with water or any other foreign substance, or milk from cows fed on refuse of distilleries, or from diseased cows. Skimmed milk may be sold only if the words "skimmed milk" be distinctly marked in letters not less than 1 inch long on each can or vessel.

Pure milk must contain at least 9.3 per cent of milk solids exclusive of fat, and 3.7 per cent of fat, except during the months from June to August, inclusive, when the respective standards are 9 and 3 per cent. Skimmed milk must contain at least 9.3 per cent of milk solids.

Penalty for violation of law, first offense, \$50 to \$200; second offense, \$100 to \$300, or imprisonment not less than 60 days; subsequent offenses, \$50 and imprisonment 60 to 90 days.

Inspectors of milk have the right to enter any premises where milk is sold and to take samples. They must give a sealed portion of each sample taken to the person in charge. No person except an authorized inspector is entitled to demand a sample for analysis. (Public Statutes, ch. 57, as amended by Laws of 1884, ch. 310; Laws of 1885, ch. 352; Laws of 1886, ch. 318; Laws of 1894, ch. 425; Laws of 1896, ch. 398.)

Condensed milk.—No person shall sell hermetically sealed cans of condensed milk unless they be distinctly labeled with the name of the manufacturer and with the true contents of the can, whether condensed pure milk or condensed skimmed milk. Packages not hermetically sealed must be labeled with the name of the manufacturer. Penalty same as for the adulteration of milk. (Laws of 1896, ch. 264.)

Imitation butter.—The laws prohibit the manufacture or sale of any compound in imitation of yellow butter which is not produced from pure milk or cream, provided that oleomargarine may be sold in separate form, in such manner as will advise the consumer of its character, free from coloration or ingredient causing it to look like butter.

Other provisions declare that any substance in imitation of butter not made exclusively of milk or cream must be labeled "imitation butter," "oleomargarine," or "butterine" in letters not less than one-half inch long, upon the top, side, and bottom of every package. A similar label must be placed across the open surface of every package when offered for sale. Retail sales of such articles not in the original packages must be labeled in letters not less than one-half inch long. Every person selling or delivering these imitations from a vehicle must obtain a license from the local milk inspector, and must have his name and place of business, with the number of his license and the words "license to sell imitation butter," conspicuously upon each vehicle. Every person selling such articles from a booth or store must register his name in the books of the milk inspector, and must maintain a sign, in letters not less than 4 inches long, to the effect that imitation butter is sold. Hotel and boarding-house keepers using imitation butter must notify each guest that the article is not genuine.

Oleomargarine shall not be furnished to any persons asking for butter.

The penalties for violation of these various provisions differ. The most common penalty is \$100 fine for first offense and \$200 for subsequent offenses.

The enforcement of the law is charged upon the local milk inspectors and upon the State dairy bureau and its agents. (Public Statutes, ch. 56, secs. 17-21, as amended and supplemented by Laws of 1884, ch. 310; Laws of 1886, ch. 317; Laws of 1891, ch. 58 and ch. 412; Laws of 1894, ch. 280, and Laws of 1896, ch. 377.)

Imitation cheese.—It is unlawful to sell any article in imitation of cheese and not made of pure milk or cream, unless it is distinctly labeled, in letters not less than 1 inch long upon the top and side of every package, "imitation cheese." Each retail purchaser must be given a label with the same words in letters not less than half an inch long. (Public Statutes, ch. 56, sec. 18.)

MICHIGAN.

FOODS GENERALLY.

Dairy and food commissioner.—The governor appoints a dairy and food commissioner who holds office for 2 years and is paid \$1,200 annually. The commissioner appoints a deputy, an analyst, and not more than six inspectors. These various officers are directed to enforce the pure-food laws, and have power to enter any place where articles of food are made or sold, and to take samples. Samples shall be taken in the presence of at least one witness, and sealed. An annual appropriation of \$18,000 is made for carrying out this law. (Laws of 1893, ch. 211, as amended by Laws of 1895, ch. 245, and Laws of 1897, ch. 154.)

Adulteration of food and drugs.—The adulteration of any article of food or the sale of such adulterated articles is prohibited. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter or is the product of a diseased animal; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient or ingredient injurious to health. The act does not prevent the sale of mixtures or compounds recognized as ordinary articles, provided each package bears the name and address of the manufacturer and the distinctive name of the article showing clearly that it is a compound. (Laws of 1895, ch. 193; as amended by Laws of 1897, ch. 118.)

Vinegar.—No vinegar shall be sold as cider vinegar which is not the legitimate product of pure apple juice or which contains less than 2 per cent of cider vinegar solids. All vinegar shall be made exclusively from the fruit or grain from which it purports to be made, and shall contain not less than 4 per cent of absolute acetic acid. Cider vinegar shall be branded as such, with the name and residence of the manufacturer. Vinegar made by fermentation without distillation shall be branded "fermented vinegar," with the name of the substance from which it is made. Vinegar made wholly or in part from distilled liquor shall be branded "distilled vinegar," and shall be free from coloring matter. Fermented vinegar must contain not less than 1½ per cent of solids contained in the fruit or grain from which it is taken. No vinegar shall be branded a fruit vinegar unless made wholly from fruit.

No person shall manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredients. All packages containing vinegar shall be branded with the name and residence of the manufacturer. Penalty, \$50 to \$100, or imprisonment not over 90 days, or both. (Laws of 1897, ch. 71.)

Liquors.—It is unlawful to manufacture or sell spirituous or malt liquors containing any injurious or abnormal ingredient. Every package containing pure

liquors shall be branded with the name of the manufacturer and with the words "pure, without drugs or poison." Penalty, \$50 to \$500 and imprisonment 10 days to 6 months. (Laws of 1895, ch. 193, sec. 16.)

Glucose.—Every package containing molasses, sirup, or glucose shall be distinctly branded with its true name. Molasses or sirup mixed with glucose shall be branded "glucose mixture," with the proportion of glucose contained, in letters not less than one-half inch long. (Ibid., sec. 15.)

Maple sugar.—It is unlawful to manufacture and sell as maple sugar or sirup any article adulterated with common sugar, glucose, or any foreign substance without distinctly marking it with the names and percentages of the adulterants used. Penalty, \$500 to \$1,000 for manufacturers, and not less than \$50 for dealers. The State food commissioner is directed to enforce the law and has the usual powers of inspection. (Laws of 1898, p. 269.)

Adulterated candy.—The manufacture or sale of candies adulterated with terra alba, barytes, talc, or other earthy substances, or with poisonous colorations or flavors or other injurious ingredients, is punishable by a fine of \$10 to \$100, or by imprisonment 10 to 30 days, or both. The local health officers must investigate any complaint as to violation of the law. (Laws of 1897, p. 9.)

Canned goods.—It is unlawful to pack or sell canned fruits or vegetables containing injurious ingredients without marking on each can the name and address of the packer. All soaked or bleached goods must be plainly marked as such in letters not less than two-line pica size. (Laws of 1895, ch. 193, sec. 14.)

Buckwheat flour.—Michigan prohibits the sale as buckwheat flour of adulterated buckwheat flour or other substances, except when labeled "substitute," "adulterated," or "compound," in prescribed type with the name and address of the factory. Violators of the act are subject to fine or imprisonment, or both. (Laws of 1897, ch. 84.)

Coffee.—It is unlawful to manufacture or sell artificial coffee in imitation of the genuine berry; or ground coffee adulterated with chicory or other substances, unless each package is marked "coffee compound," with the name and address of the manufacturer. (Laws of 1895, ch. 193, sec. 15.)

Adulterated lard.—No person shall manufacture or sell any mixture of animal or vegetable oils, other than pure fat of swine, in imitation of lard, or any compound of lard with such other substances, unless each package shall be distinctly labeled "lard substitute" or "compound" or "adulterated lard," as the case may be, in letters not less than 1 inch long. Each package sold at retail shall be similarly labeled. (Ibid., secs. 9-12.)

Fruit jelly.—All imitations of fruit jelly or fruit butter containing glucose dextrin, or other substances, and colored in imitation of the genuine article, must be distinctly labeled "imitation fruit jelly" (or butter), with the name of the manufacturer and the place where made. Such imitations must also be composed of harmless ingredients. Penalty, \$50 to \$500 or imprisonment 90 days to 2 years, or both. (Ibid., sec. 13.)

Penalties.—Where other penalties are not provided for violation of the above provisions, the false branding of any article or the defacement or removal of a brand is subject to a fine of \$100 to \$1,000 or to imprisonment 6 months to 8 years, or both. Other violations of the law are subject to fine of \$100 to \$500 or imprisonment 30 to 90 days, or both. (Ibid., secs. 18, 19.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk which is adulterated or unwholesome, or milk from cows fed upon garbage or any substance in a state of fermentation or otherwise deleterious, or from cows kept in connection with any family in which there are contagious diseases. It is unlawful to sell milk from which cream has been removed unless each vessel containing it be conspicuously marked "skimmed milk," in letters not less than 1 inch long. Pure milk must contain not less than 12.5 per cent of milk solids, including not less than 3 per cent of fat, and must have a specific gravity between 1.029 and 1.033. Skimmed milk must have a specific gravity between 1.032 and 1.037. Penalty for violation, fine not over \$100 or imprisonment not over 8 months.

The city of Detroit shall establish, and each other city or town may establish, the office of milk inspector. Such inspectors shall visit all dairies and barns in which cattle are kept for furnishing milk, and shall otherwise enforce the law. They have the right to enter any premises and to take samples for analysis. (Laws of 1887, p. 324, as amended by Laws of 1889, p. 324.)

A later law prohibits the adulteration of milk with water, chemicals, and preservatives, or any other foreign substance. Penalty, \$1 to \$100 or imprisonment not more than 90 days, or both. (Laws of 1899, ch. 106.)

Imitation butter.—The term oleomargarine is defined in detail so as to include all imitations of butter. Every package of imitation butter must be distinctly marked in large letters with the name and address of the manufacturer and with the name of each ingredient entering into it. Retail purchasers shall be verbally informed of the character of the substitute and shall also be given a distinct label with the name of the substance and with the name and address of the manufacturer and the name of each ingredient. Every store where oleomargarine is sold and every hotel or boarding house where it is served shall maintain on the wall a placard with letters not less than 3 inches long indicating that oleomargarine is sold or used. The words "butter," "creamery," "dairy," or the name or representation of any breed of dairy cattle shall not be used in connection with butter imitations. Penalty for violation of law, \$50 to \$500 or imprisonment 6 months to 3 years, or both. (Laws of 1899, ch. 147.)

Cheese.—It is unlawful to sell as cheese any article not made exclusively of milk or cream, or into which any animal fats, melted butter, or similar articles have been introduced. Penalty, \$50 to \$500, or imprisonment 90 days to 2 years. The State dairy and food commissioner shall issue to all cheese manufacturers on application a uniform stencil bearing the words "Michigan full cream cheese," with the number of the factory. Each factory shall be registered. This stamp shall be used only upon cheese made from milk from which no cream has been taken. Every creamery or butter factory shall register yearly with the dairy and food commissioner, giving its location, etc. (Laws of 1895, ch. 193, secs. 5-7; Laws of 1897, ch. 118.)

Renovated butter.—The law provides that butter made by melting original stock and mixing it with skimmed milk or other material, or other process butter, shall be plainly labeled "process butter" on each roll or tub, or by a placard across the face of the opened package. Penalty, \$25 to \$100. The dairy and food commissioner shall enforce the law. (Laws of 1899, ch. 254.)

MINNESOTA.

FOODS GENERALLY.

Dairy and food commissioner.—The governor appoints a dairy and food commissioner, whose term of office is 2 years, and salary \$1,800. The commissioner appoints a secretary, an assistant commissioner, a chemist, and necessary inspectors, the total appropriation being limited to \$15,000. It is the duty of these officers to enforce the various pure-food laws. They have access to all places of business, and may take samples. Employees of common carriers are required to assist in tracing prohibited articles. (Laws of 1899, ch. 295.)

Adulteration of food.—It is unlawful fraudulently to adulterate food, liquor, or drugs with any substance injurious to health. Penalty, imprisonment not more than 1 year, or fine not more than \$200. (Stats., 1878, ch. 101.)

Unwholesome foods.—The sale of diseased or unwholesome food without making its character known to the buyer is punishable by imprisonment not more than 6 months or fine not over \$500. (Ibid.)

Adulteration of liquors.—It is unlawful to manufacture or sell liquors containing any ingredient not normal or healthful. Penalty, \$25 to \$100 for first offense, and \$50 to \$100, or imprisonment 30 to 90 days, or both, for subsequent offenses. (Laws of 1889, ch. 7.)

Vinegar.—No vinegar shall be sold as cider vinegar which is not the legitimate product of pure apple juice, or which contains less than 2 per cent of cider vinegar solids. Cider vinegar shall be branded as such. All vinegar shall be made exclusively from the fruit or grain from which it purports to be made, and shall contain not less than 4½ per cent of absolute acetic acid.

No person shall manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredients. All packages containing vinegar shall be branded with the name and residence of the manufacturer. Each barrel shall also be marked with its standard strength, to be denoted by the number of grains of bicarbonate of potash necessary to neutralize 1 fluid ounce of vinegar. Penalty, \$50 to \$100, or imprisonment 30 to 60 days. (Laws of 1891, ch. 119.)

Honey.—The law forbids the sale of honey compounded with or manufactured from glucose, sirup, or any substance not the product of the honey bee, unless the package is so marked, with the name of the manufacturer and the names of the adulterant materials. Honey which is produced by bees fed upon glucose sugar or sirup, or any other substance not their natural food, must be so marked. Penalty, \$15 to \$100, or imprisonment not over 30 days, or both. (Laws of 1893, chap. 21.)

Candy.—It is a misdemeanor to manufacture or sell candy adulterated with glucose, terra alba, or any other injurious substance. Penalty, \$50 to \$100. (Laws of 1895, ch. 204.)

Baking powder.—The law prohibits the manufacture and sale of baking powder containing ingredients unfit for human use or injurious to health. All packages containing baking powder must be distinctly marked with the name and place of business of the manufacturer, and with the words, "This baking powder is composed of the following ingredients and none others," together with the names of the ingredients. (Laws of 1899, ch. 245.)

Spices and condiments.—A careful definition of spices and condiments and of adulterations thereof is given. Every person manufacturing or selling such an adulterated product must conspicuously mark each can or package in a type not smaller than double pica, with the name and location of the factory and the words "mixture" or "adulterated." The State dairy and food commissioner is directed to enforce the law. Penalty, \$10 to \$50, or imprisonment not less than 30 days. (Laws of 1897, ch. 176.)

Jellies.—A careful definition of food jelly and the adulteration thereof is given. Every person manufacturing or selling such an adulterated product must conspicuously mark each can or package in a type not smaller than double pica, with the name and location of the factory and the words "mixture" or "adulterated." The State dairy and food commissioner is directed to enforce the law. Penalty, \$5 to \$50, or imprisonment not over 3 months. (Laws of 1897, ch. 167.)

Lard.—It is unlawful to manufacture or sell any compound of animal or vegetable fats in imitation of lard, or in combination with pure lard, unless each package is branded, in letters not less than 1 inch long, "lard substitute," with the approximate proportions of the constituents, and with the name of the manufacturer and his place of business. In the case of mixtures containing lard the words "adulterated lard" must be similarly used. In each retail sale of such articles the purchaser must be furnished a card with the same statement as is required on original packages. Persons selling or serving to guests articles made with substitutes for lard or adulterated lard must furnish each purchaser or guest a card with a statement to that effect. In case no bill of fare is provided hotel keepers and others must keep conspicuously posted on each side of the dining room a statement of the character required. The State board of food commissioners is to enforce the law, and may employ expert assistants, who shall have access to any place and may open packages and take samples. The act does not apply to cottolene if branded as such, with the name of the manufacturer, and if containing no substance injurious to health. Penalty for violation, \$25 to \$100, or imprisonment 30 to 90 days. (General Laws, 1891, ch. 12; Laws of 1893, ch. 126.)

DAIRY PRODUCTS.

Milk.—It is unlawful to sell unclean, impure, unwholesome, or adulterated milk or cream, or milk or cream which has not been well cooled or aerated, or to which preservatives have been added. The law also prohibits the sale of milk from cows kept in a crowded or unhealthy condition, or from cows which are sick or which are fed on distillery waste or other unwholesome substance, or from cows within 15 days before or 5 days after parturition. The milk standard is 13 per cent of milk solids, of which not less than 3.5 per cent shall be fat. Standard test instruments are prescribed.

It is unlawful to sell or advertise any article intended as an adulterant or preservative of milk, butter, or cheese, or to use such adulterants or preservatives. Skimmed milk may be sold only from cans so marked in letters at least 1 inch high.

Every person selling or distributing milk in towns of more than 1,000 population shall annually obtain a license from the State dairy and food commissioner for each vehicle used, or for each store or booth. Licensed vehicles shall be marked with the name and place of business of the owner and the number of the license. Penalty, \$25 to \$100, or imprisonment 30 to 90 days. (Laws of 1899, ch. 295.)

Imitation butter and cheese.—It is unlawful to manufacture or sell as butter or cheese any article or compound not produced from pure milk or cream. No person shall mix animal or vegetable fats with any dairy product, or coat or color, with annatto or otherwise, any compound in such a way as to cause it to resemble butter or cheese; nor shall any person sell articles made in violation of these provisions.

Keepers of hotels, boarding houses, etc., supplying imitation butter shall print on every bill of fare a notice to that effect, or, if no bill of fare is used, shall post such notice conspicuously. (Ibid.)

Branding of cheese.—The State dairy and food commissioner is directed to issue to cheese manufacturers a uniform stencil with the words "Minnesota State full cream cheese," and the number of the factory. Cheese so branded shall contain not less than 45 per cent of fat to total solids. Cheese containing less fat shall be marked, in letters not less than 1½ inches high, "skim cheese." Dealers selling skim cheese must post a conspicuous notice to that effect. It is unlawful to sell cheese falsely branded as to quality and place where made. (Ibid.)

Enforcement of law.—Detailed provisions are enacted regarding the enforcement of the law as to dairy products, the use of search warrants, the seizure of property as evidence, etc. Creameries and cheese factories are required to report the amount of their business annually to the dairy and food commissioner.

Penalties.—The penalty for the violation of any of the provisions of the laws relating to dairy products is a fine of \$25 to \$100 or imprisonment 30 to 90 days. (Laws of 1899, ch. 295.)

Process butter.—Butter made by melting original butter and adding to the fat skimmed milk, cream, or any other product, commonly known as "renovated butter," shall not be sold unless each package is plainly marked, in letters at least three-fourths of an inch high, on the top and side, "renovated butter." The State dairy and food commissioner is to enforce the law. (Laws of 1899, ch. 94.)

MISSISSIPPI.

Adulteration of food and drugs.—The adulteration of any article of food, or of any drug, or the sale of such adulterated articles, is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopoeia, or by such other pharmacopoeia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient, or ingredient injurious to health. Any county, city, town, or village may appoint an inspector of food to enforce this and other pure-food laws. (Code 1892, secs. 2095-2098.)

Unwholesome food.—The law prohibits the sale of unsound or unwholesome provisions as sound and good, or the sale of the flesh of any animal dying otherwise than by slaughter or slaughtered when diseased, or the flesh of any dog, cat, or other unclean animal. (Code 1892, sec. 1105.)

Candy.—It is unlawful to adulterate candy with lime or other injurious substance. Penalty, not over \$500, or imprisonment not over 6 months, or both. (Code, sec. 952.)

Imitation butter.—It is unlawful to sell oleomargarine or other imitation without disclosing its character by a distinct mark. Penalty, \$10 to \$100, or imprisonment not over 1 month, or both. (Code 1892, sec. 1242.)

MISSOURI.

FOODS GENERALLY.

Adulteration of food.—The adulteration of any article of food or drink or of any drug or medicine is a misdemeanor. (Rev. Stats., 1899, sec. 2269.)

It is a misdemeanor to manufacture, sell, or offer to sell any article intended to be used in the preparation of food in which there is any arsenic, calomel, bismuth, ammonia, or alum. Penalty, not less than \$100. (Laws of 1899, p. 170.)

Unwholesome food.—It is unlawful to sell the flesh of any animal dying otherwise than by slaughter or slaughtered when diseased, or of any calf killed before the age of 6 weeks, or to sell unwholesome bread or drink without its character being made known to the purchaser. Penalty, not over \$1,000, or imprisonment not over 1 year. (Rev. Stats., 1899, sec. 2269.)

Adulteration of liquors.—It is unlawful to adulterate liquors with strychnin or other poisonous ingredients, or to sell such adulterated liquors. Liquor dealers and manufacturers must take oath that they will not mix or adulterate liquors. (Rev. Stats., 1899, secs. 2278, 2289, 2290.)

Beer.—The office of beer inspector is established by an act of 1899. The inspector must be an expert brewer. He is appointed by the governor for a term of 4 years and is paid \$3,000 per annum. He may appoint 4 deputies, who are paid \$1,500

per annum. Every brewery must be inspected by these officers and must receive a license to carry on business.

It is unlawful to manufacture beer or other malt liquors containing any substance other than pure hops, pure malt, wholesome yeast, or extract of hops, or pure barley or rice. The inspector shall label all beer inspected, certifying that it is made from wholesome ingredients. He shall keep a record of all beer and malt liquors manufactured or sold by manufacturers or dealers. He is entitled to collect for the use of the State a fee of 1 cent per gallon for all beer inspected, and 2 cents for labeling each package. All beer or malt liquors manufactured for export from the State shall be inspected in the same way, but without cost to the manufacturer.

Any person receiving beer or malt liquors for sale from outside the State shall notify the inspector and shall furnish him a sworn affidavit from the manufacturer that the beer is pure according to the standard fixed in the law. Every transportation company must furnish to the inspector, on request, a duplicate bill of lading of any beer or malt liquors received for shipment into the State.

Penalty for sale of beer without inspection or for failure to destroy certificates or labels of purity, fine not over \$500, or imprisonment not less than 6 months and revocation of license for 2 years. Penalty for any unlawful imitation of labels, imprisonment not over 5 years. (Laws of 1899, p. 228.)

Vinegar.—It is unlawful to manufacture or sell as cider vinegar any article not made exclusively from pure apple juice. All vinegar must be free from artificial coloring or flavoring. Every cask or package of cider vinegar shall be marked as such, with the name and location of the manufacturer. No vinegar shall be branded "fruit vinegar" unless made wholly from some kind of fruit. (Rev. Stats., 1899, secs. 2282-2285.)

Candy.—It is unlawful to manufacture candy containing any cochineal, ocher, paris green, or any substitute for sugar, sirup, or cream of tartar, or any substitute for or other than pure vegetable ingredients. Penalty, \$50 to \$100, or imprisonment 3 to 6 months, or both. (Rev. Stats., 1899, secs. 2279, 2280.)

Mixed flour.—No person shall sell flour or meal or hominy made by the admixture or adulteration of grains, unless each package be branded with the names of the grains contained. Manufacturers of such products must register with the county recorder their names, places of business, and the grains they use. (Rev. Stats., 1899, secs. 8501-8506.)

DAIRY PRODUCTS.

Milk.—All cities are empowered to license and regulate dairies, (Laws of 1891, p. 63.)

Imitation butter.—Any article in the semblance of butter, and not made from pure milk or cream, is declared imitation. No person shall compound animal fat or other substance with butter, or shall compound any coloring matter with such foreign fats for the purpose of making the product resemble yellow butter. It is unlawful to sell, ship, or transport such prohibited substances unless properly marked. Every person who lawfully manufactures a substitute for butter shall mark each package, in letters not less than 1 inch long, "substitute for butter."

No action can be maintained to collect the value of goods made in violation of the law. Search warrants may be issued, and the officers serving them shall take samples. The State board of agriculture is directed to enforce the law, and \$2,500 is annually appropriated for that purpose.

Penalty for violation, \$50 to \$100, or imprisonment not over 30 days; for subsequent offenses, \$250 to \$500, or imprisonment 30 days to 6 months, or both. (Laws of 1895, p. 26.)

Cheese.—Cheese manufactured from cream or milk containing not less than 8 per cent of butter fat shall be deemed full cream cheese. Cheese made from milk from which the cream has been removed, or milk containing less than 8 per cent of butter fat, shall be marked, with letters not less than 1 inch in length, "skimmed milk cheese," or with the true name of the article. Penalty for violation, imprisonment not over 1 year, or fine \$10 to \$500, or both. No person shall ship or consign by any common carrier cheese made from milk testing at less than 3 per cent butter fat unless it is so labeled, but this does not apply to goods in transit across the State. Penalty, \$10 to \$500.

The State board of agriculture is charged with the enforcement of the act, and may bring prosecution in any court of competent jurisdiction. (Laws of 1897, p. 104.)

MONTANA.

Adulterated food.—It is a misdemeanor to adulterate or dilute food, drink, or medicine with fraudulent intent, or to sell such an adulterated or diluted article. (Penal code, sec. 682.)

Unwholesome food.—Whoever sells any article of food, drink, or medicine which is tainted or otherwise unwholesome is guilty of a misdemeanor. (Penal code, sec. 683.)

Candy.—It is a misdemeanor to manufacture or sell candy adulterated with terra alba, barytes, talc, or any mineral substance, with poisonous colors or flavors, or with other ingredients deleterious to health. (Laws of 1899, p. 139.)

Imitation butter and cheese.—It is unlawful to sell any article in imitation of butter or cheese which is not made exclusively from milk or cream, unless each package be marked, in letters not less than one-fourth of an inch square, "oleo-margarine" or "imitation cheese." Each retail purchaser must be given a similar printed label. Keepers of hotels, restaurants, etc., using these articles must post a conspicuous notice to that effect, and must inform each guest as to the character of the article, if inquiry is made. Penalty, not over \$100, or imprisonment not over 1 month. (Penal code, secs. 684-686.)

NEBRASKA.

FOODS GENERALLY.

Food commissioner.—The governor of the State is made ex officio food commissioner, and may appoint a deputy at the salary of \$1,500 yearly. It shall be the duty of these officers, with their employees, to enforce the pure-food laws, to set standards for milk and cream, and to require licenses as stated below. They have power to enter any place of manufacture of dairy products, cider, vinegar, or any imitation thereof, and may inspect any article therein and take samples. (Laws of 1899, ch. 35.)

Licensing manufacturers and dealers.—Each manufacturer and wholesale and retail dealer in butter, cheese, cider or adulterated cider, vinegar or adulterated vinegar must obtain a permit from the food commissioner annually, conditioned on the faithful observance of the laws of the State. For the permits the following fees are charged annually: Manufacture of imitation butter or cheese, \$100; wholesale dealers therein, \$50; retail dealers, \$25; owners of creameries and cheese factories and wholesale dealers in butter or cheese, \$10; manufacturers of lard butter, \$15; manufacturers or wholesale dealers in adulterated cider or any so-called grain, wine, or fruit vinegar, \$50; manufacturers or wholesale dealers in cider vinegar, \$15. (Laws of 1899, ch. 35.)

Adulteration of food and drugs.—The adulteration of any article of food or of any drug or the sale of such adulterated articles is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopœia or by such other pharmacopœia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold, if not injurious to health, if containing all necessary and no unnecessary ingredient and if distinctly labeled as such.

Any person interested may demand a sample of any article of food on offering its value. Penalty for violation, \$25 to \$100, or imprisonment not over 3 months, together with the costs of inspecting and analyzing adulterated foods. (Laws of 1897, ch. 99.)

Vinegar.—No vinegar shall be manufactured or sold as cider vinegar which is not the legitimate product of pure apple juice exclusively, or which does not contain at least 2 per cent of cider vinegar solids. Each cask or other package of cider vinegar shall be labeled as such, with the name of the manufacturer. Vinegar made from grain, wine, or fruit shall be without artificial coloring, shall be made wholly from the fruit or grain from which it purports to be made, shall contain not less than 4 per cent of acetic acid, and shall bear the name of the manufacturer and the name of the article from which it is made. No lead, sulphuric acid, or other injurious substance may be used in vinegar. Penalty as for cider. (Laws of 1897, ch. 4.)

Cider.—It is unlawful to manufacture or sell as cider any preparation containing salicylic acid, formalin, or any other drug or substance not belonging to the apple, or to manufacture or sell as cider any product which is not cider. Adulterated cider may be sold if distinctly marked as such, with the approximate proportion of each ingredient. Penalty, \$50 to \$100, or imprisonment 30 to 100 days, or both. (Laws of 1897, ch. 8.)

DAIRY PRODUCTS.

Imitation butter and cheese.—Any article in the semblance of butter or of cheese not produced wholly from pure milk or cream is declared imitation. No person shall coat or color with annatto or otherwise any substance designed as a substitute for butter or cheese, or shall compound animal or vegetable fat with butter or cheese or with coloring matter. It is unlawful to manufacture or sell a substitute for butter or cheese unless each purchaser is given a clearly printed statement that it is a substitute. Proprietors of hotels, bakeries, boarding houses, and public institutions using substitutes shall keep posted opposite each table a conspicuous notice, in prescribed form, to that effect. Imitation butter and cheese may, however, be manufactured for shipment outside the State, subject only to the restrictions of the United States law. Penalty, \$25 to \$50, or imprisonment not over 30 days; for subsequent offenses, \$50 to \$100, or imprisonment 30 days to 6 months, or both. (Laws of 1893, ch. 78.)

NEVADA.

Adulterated and unwholesome food.—It is unlawful to sell the flesh of diseased animals or other unwholesome provisions, or poisonous or adulterated food or drink. Penalty, not over \$500 or not over 6 months' imprisonment. (Gen. Stats., sec. 4677.)

Milk.—The law prohibits the sale of adulterated, impure, or unwholesome milk, or milk from cows kept in a crowded or unwholesome condition, or from cows fed on brewery or distillery waste, or other unwholesome substances. Skimmed milk may be sold as such only. Each county shall appoint a milk inspector. Penalty, not less than \$100. (Ibid., secs. 4801-4809.)

Imitation butter.—It is unlawful to manufacture or sell any compound, in imitation of butter, composed of foreign fats or into which melted butter has been introduced, unless the package containing the imitation be marked "oleomargarine" in prescribed type. Penalty, not over \$500 or imprisonment 30 days to 6 months. (Ibid., secs. 4810-4812.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. (Laws of 1897, ch. 18.)

NEW HAMPSHIRE.

FOODS GENERALLY.

Adulterated food and drugs.—No person shall manufacture or sell an adulterated food or drug. A drug is deemed adulterated if it does not conform to the standard of the United States Pharmacopoeia or other standard work by which it is recognized, or if it contains less of the active principle than is contained in the genuine article or falls below its own professed standard. Food is deemed adulterated if it contains less of any valuable constituent than the genuine article; if it contains any foreign substance; if it is colored, polished, or powdered so as to conceal damage; if it contains a poisonous ingredient or a decomposed or diseased or unwholesome substance. Sellers of food or drugs must furnish to the proper officials samples of all articles. Any person who has reason to doubt the purity of an article may send a sample to the State board of health for analysis.

The State board of health shall take necessary steps for enforcement of the law. Penalty, fine not over \$400 or imprisonment not over 1 year. (Public Laws of 1891, ch. 39.)

Veal.—It is unlawful to kill any calf less than 4 weeks old for food or to sell the flesh of such a calf. Penalty, not over \$50, or imprisonment not over 30 days, or both. (Ibid., sec. 11.)

Adulterated liquors.—The law prohibits the adulteration of any kind of liquor with *cocculus indicus* or other enumerated drugs, or with any injurious substance. Penalty, not over \$1,000, or imprisonment not over 1 year. (Pub. Stats., ch. 269, sec. 10.)

DAIRY PRODUCTS.

Milk.—It is unlawful to adulterate milk with water or otherwise, or to sell such adulterated milk, or milk which is unwholesome or produced by diseased cows or cows fed upon the refuse of distilleries or any other injurious substance. The law also prohibits the sale of impure milk, or milk which contains less than 13 per cent of milk solids. Skimmed milk may be sold only from cans or packages distinctly marked as such in letters not less than 1 inch long.

Towns and cities may appoint inspectors of milk. In towns having inspectors, each person selling milk must obtain a license, and shall report to the inspector the names of his employees, and shall place the number of his license on each vehicle used. Inspectors may enter places where milk is kept, examine milk, and take samples. (Pub. Stats., 1891, ch. 127.)

Imitation butter and cheese.—The law prohibits the manufacture or sale of any compound in imitation of butter not produced wholly from pure milk or cream, or of any such compound in imitation of cheese, unless each package containing such article is labeled "adulterated butter," "oleomargarine," or "imitation cheese" in letters not less than 1 inch long. Each retail purchaser must be furnished with a label of a similar character. Any article intended as a substitute for butter must be of some other color than yellow. Oleomargarine may be sold in separate and distinct form, free from coloration or from any ingredient that makes it look like butter. Keepers of hotels or boarding houses, etc., must notify their guests if imitations are used. Penalty, \$25 to \$50 for the first offense; for the second offense, \$50 to \$100 or imprisonment from 10 to 90 days, or both. (Public Laws of 1895, ch. 115.)

The State board of agriculture is directed to enforce the law. (Laws of 1899, ch. 58.)

NEW JERSEY.

FOODS GENERALLY.

State dairy commissioner.—The State board of health shall appoint a State dairy commissioner, who shall hold office for 3 years, and receive \$2,000 salary. He may appoint assistants, chemists, and inspectors. The total appropriation for this service is not over \$10,000 yearly. The proper officers may have full access to any premises where dairy products or imitations are manufactured or sold, and may open any vessel or package and take samples. By a later law this officer is also directed to enforce other pure food laws.

The law provides in detail the jurisdiction of the courts and the methods of procedure in prosecutions for violations. (Laws of 1886, p. 107; Laws of 1895, p. 806.)

Adulteration of food and drugs.—The adulteration of any article of food or of any drug or the sale of such adulterated articles is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopœia or by such other pharmacopœia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, and if distinctly labeled as such.

The State board of health shall from time to time fix the limits of variability in articles of food and drugs, and may, with the approval of the governor, declare certain articles or preparations exempt from the law. A guaranty of purity from a manufacturer within the State is a defense for the retailer.

The State board of health may appoint analysts and inspectors, and shall adopt all necessary measures to enforce the law. Every person selling articles of food or drugs must give a sample to any inspector tendering the value thereof. Inspectors shall divide each sample into two parts, seal them, and deliver one part to the seller.

The dairy commissioner also has powers as to enforcing this law.

The law prescribes in detail the jurisdiction of courts and the methods of procedure in the trial of persons charged with violating the law, together with the distribution of fines collected.

Penalty, \$50 for the first offense and \$100 for subsequent offenses. (Laws of 1881, p. 283, as amended and supplemented by Laws of 1883, p. 185; Laws of 1887, p. 150; Laws of 1897, ch. 93.)

Vinegar.—The law prohibits the manufacture or sale as cider vinegar of vinegar not exclusively the product of pure apple juice. It is unlawful to sell any kind of vinegar containing lead, sulphuric acid, or other injurious ingredients. Penalty, \$50 to \$100. Each county may appoint an inspector of vinegar, who has the usual right of access and of taking samples. Such inspectors are also directed, on request of any manufacturer or dealer, to inspect vinegar in his possession and give a certificate concerning its acidity. (Laws of 1888, p. 349.)

Impure ice.—The board of health in cities of the first class may prohibit the use or sale of impure ice or ice from polluted ponds or streams. (Laws of 1895, ch. 353.)

Biscuits and cakes.—It is unlawful to manufacture cakes or biscuits in which any substitute for eggs has been used unless a conspicuous label is placed on each package stating that fact. Penalty, \$100 for first offense and \$200 for subsequent offenses. (Laws of 1895, ch. 254.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. (Laws of 1895, ch. 180.)

DAIRY PRODUCTS.

Milk.—This State declares it unlawful to sell milk adulterated with water or any other foreign substance, or to keep cows for the production of milk in a crowded or unhealthy condition, or to feed them on distillery waste or any substance in a state of putrefaction, or on any substance which produces unwholesome milk. It is also unlawful to sell such unwholesome milk, or milk which has been exposed to contamination from persons having contagious diseases. Milk containing less than 12 per cent of milk solids is deemed adulterated or skimmed. Skimmed milk may be sold only in cans bearing metal labels, "skimmed milk," in letters not less than 2 inches high. The sale of adulterated or skimmed milk is entirely prohibited in cities of the first class. Penalty for violation, \$50 for first offense and \$100 for subsequent offenses.

The enforcement of the law is charged upon the State dairy commissioner. The State board of health enforces the law regarding milk exposed to contagious diseases. Local boards of health may require persons selling milk to report the name and location of all persons furnishing them milk and to adopt ordinances regarding the sale of unwholesome milk. Inspectors have the usual powers. Samples must be sealed up in the presence of one or more witnesses and sent to the State analyst for analysis. The jurisdiction of the procedure of the courts in prosecutions are described in detail. Special provision is made for jury trials in certain cases. (Laws of 1882, p. 97; Laws of 1883, p. 230; Laws of 1884, p. 127; Laws of 1897, ch. 152; Laws of 1898, ch. 183; Laws of 1898, ch. 182.)

Imitation butter and cheese.—It is unlawful to manufacture or sell any compound of fats or oils, not produced from pure milk or cream, artificially colored in imitation of butter or cheese. Oleomargarine may be sold in such manner as will advise the consumer of its real character, free from artificial coloring. Oleomargarine and similar compounds must be sold only from packages branded in 3 places "oleomargarine," "butterine," or the correct name in letters at least one-half inch high. Retail dealers must inform each purchaser that the article sold is imitation butter or cheese and must furnish a card bearing the true name with each package sold. Penalty, not over \$200, or not over 6 months' imprisonment. The jurisdiction of the courts and the methods of issuing process and conducting prosecutions are described in detail. (Laws of 1886, p. 107, as amended by Laws of 1887, p. 192, and Laws of 1895, p. 658.)

NEW MEXICO.

Adulteration of food.—The code of New Mexico provides that no person shall adulterate any drug with any substance injurious to health, under penalty of imprisonment not over 1 year or fine not over \$300. No person shall mix, color, or powder an article of food or drug with any ingredient injurious to health, or manufacture any article containing diseased or unwholesome animal or vegetable substances. Penalty, \$200 for first offense; for subsequent offenses, not over \$300 or imprisonment not over 1 year, or both.

It is also unlawful to sell any article of food or drug not of the nature or quality demanded by the purchaser. The law does not apply to articles to which a harm-

less ingredient is necessarily added in production or transportation, or to proprietary medicines, or to compound articles of food, provided that the buyer is given notice by a label that they are compounded. It is further unlawful to subtract any substance from an article of food so as to affect it injuriously. Sellers of such articles may plead in defense a written warranty on the part of the manufacturer that the article is genuine, and their own ignorance that it was otherwise.

Penalty for violation of law, \$50 for the first offense; for subsequent offenses, not over \$100 or imprisonment not over 6 months, or both. (Compiled Laws, 1897, secs. 1245-1255.)

The governor may from time to time declare certain articles or preparations exempt from the provisions of the law.

Unwholesome food.—It is unlawful to sell spoiled or unwholesome provisions without notice to the purchaser, under penalty of fine not over \$500 or imprisonment not over 6 months. (Compiled Laws, sec. 1244.)

NEW YORK.

FOODS GENERALLY.

Adulteration of food and drugs.—The adulteration of any article of food or of any drug, or the sale of such adulterated articles, is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopœia or by such other pharmacopœia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, and if distinctly labeled as such.

The State board of health from time to time fix the limits for variability of articles of food or of drugs whose standard is not prescribed in the national Pharmacopœia. With the approval of the governor, the State board may declare certain articles exempt from the provisions of the law.

Enforcement.—The State board of health is directed to take necessary steps to enforce the pure-food laws generally. It may appoint analysts and inspectors, who have the right of access to any premises and the right to take samples. Local boards of health may give inspectors similar powers. Upon discovering any violations of the law the State board shall notify the district attorney of the proper county, who must commence proceedings. (General Laws, ch. 25.)

Unwholesome food.—It is unlawful to sell any food or drug which is tainted or spoiled, or otherwise unfit for use. (Penal Code, sec. 408.)

Adulterated liquors.—The New York law brings under the definition of adulterated food spirituous or malt liquor which contains any substance not normal or healthful, or ale or beer which contains a substitute for hops or for pure extract of hops. (General Laws, ch. 25, sec. 41.)

The State board of health shall, at least once yearly, take samples in the public market of spirituous and malt liquors manufactured in each brewery and distillery in the State. These samples shall be analyzed, and, if found adulterated, the manufacturers shall be prosecuted.

Domestic wines.—Wines containing alcohol not produced by natural fermentation, and all compounds of other liquors with pure wines, and all wines or imitations which contain certain enumerated drugs or other antiseptics or coloring matter, or artificial flavoring, or any injurious substance, are deemed adulterated, and their sale is prohibited. Wine which contains at least 75 per cent of pure grape juice is defined as "pure;" not more than 8 per cent of pure sugar may be added. Wine containing 50 to 75 per cent of pure grape juice shall be conspicuously stamped "half wine" in prescribed type; while wine containing less than 50 per cent of pure grape juice shall be labeled "made wine." Penalty, 50 cents for each gallon sold or manufactured. (Ibid., secs. 43, 46-50.)

Vinegar.—All vinegar which contains lead, sulphuric acid, or other injurious ingredients, or artificial coloring matter, or which has an acidity of less than 4½ per cent of acetic acid, or in the case of cider vinegar which contains less than 2 per cent of cider vinegar solids, is deemed adulterated, and its manufacture or sale is prohibited. The manufacture or sale of an imitation as cider vinegar is

also prohibited. Each manufacturer of cider vinegar must brand each cask or package with his name and place of business and the words "cider vinegar." (General Laws, ch. 33, art. 3.)

Maple sugar and sirup.—The law prohibits the manufacture or sale of maple sugar or sirup which is not the product of pure sap. It is also unlawful to manufacture or sell as cane sugar or cane sirup any article containing maple sugar or sirup. (Laws of 1898, ch. 194.)

Adulterated candy.—The New York law includes in the list of generally prohibited adulterations, the adulteration of candy with terra alba, barytes, or other mineral substances, or with poisonous colors or flavors or other injurious ingredients. (General Laws, ch. 25, sec. 41.)

Fruit juices.—A recent law prohibits the sale of any unwholesome or poisonous acid or other substance as a substitute for pure juice of natural fruits, or the knowing use of any such article in the preparation of food or drink. Penalty, not over \$250, or imprisonment not over 6 months, or both. (Laws of 1899, ch. 343.)

Coloring matter in food products.—It is unlawful to manufacture or sell any poisonous matter intended for the coloring of food products, or to use such poisonous coloring matter. (Laws of 1899, ch. 518.)

Impure ice.—Ice which is cut from any canal must be sold only from buildings or wagons having a distinct sign to that effect. (General Laws, ch. 25, sec. 41a.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk containing less than 12 per cent of milk solids or less than 3 per cent of fat, or milk drawn from cows fed on distillery waste or substances in a state of fermentation or otherwise unhealthy, or from cows kept in a crowded or unhealthy condition, or of milk or cream to which water or other foreign substance has been added. The prohibition regarding the sale of skimmed milk is absolute in Greater New York, but it may be sold as such elsewhere. No persons shall keep cows for the production of milk for sale in such a way as to cause the milk to be unhealthy.

It is unlawful to furnish to a butter or cheese factory milk from which the stripings have been withheld, or sour milk.

No butter or cheese factory which receives milk without buying it shall use such milk or any of its products for its own benefit without the consent of the owners. Correct accounts of milk received and of butter and cheese produced must be kept.

If milk is sold outside the county where produced, each can or vessel must be distinctly branded with the name of the county where produced and each vehicle from which milk is sold must be similarly marked. Glass bottles in which milk is sold must have the name of the seller blown or engraved in them.

No person receiving milk for sale or manufacture shall keep it in utensils or in rooms or buildings which are unclean or unsanitary. (Laws of 1900, ch. 101.)

Penalty, same as for imitation butter and cheese. (General Laws, ch. 33, art. 2; Laws of 1898, ch. 153.)

There are also special laws regarding creamery utensils, tests in creameries, and the bringing of unwholesome milk to creameries. (Laws of 1900, chs. 76, 101, 544, 559.)

Condensed milk must be made only from milk corresponding to the above requirements. Packages containing condensed milk must be labeled with the name of the manufacturer. (General Laws, ch. 33, art. 2.)

Imitation butter.—It is unlawful to manufacture or sell any article in imitation of butter, not made from unadulterated milk or cream, which shall be artificially colored in imitation of butter. The law does not prohibit the manufacture or sale of uncolored oleomargarine or similar substitutes, provided that every package shall have painted on the outside a white strip completely around it, on which shall be branded with a burning iron "oleomargarine," "imitation butter," etc., in letters at least one-half inch high. The name and address of the manufacturer shall also be placed upon each package. Each retail purchaser of imitation butter or cheese shall be given a card or notice stating its character in the prescribed form. Penalty, \$100 for the first offense and \$200 for subsequent offenses.

Imitation butter and cheese.—Another section of the law prohibits the manufacture of any article composed of animal or vegetable fats in imitation of pure butter, or the mixture of any such fats, or of acids or other injurious substances, with milk or butter so as to produce an imitation article. No person shall coat, powder, or otherwise color any such imitation compound with any substance so as to impart a yellow color resembling butter or cheese. It is similarly unlawful to manufacture any imitation of cheese, or any article to which animal fats or oils or melted butter or any substance not produced from milk or cream has been added.

The sale of articles made in violation of the law or their use by proprietors of bakeries, hotels, boarding houses, etc., is prohibited.

No imitation butter or cheese shall be purchased with money appropriated by the State or shall be used in any State institution or in any institution aided by State money.

Penalty for violation, not over \$100. Each day during which manufacture of prohibited articles is carried on, or each separate sale of such articles, or each day of prohibited use of such articles, is deemed a separate offense. (General Laws, ch. 33, art. 2.)

Branding of cheese.—Every manufacturer of cheese made from pure or full milk may brand it "full-milk cheese," and no other shall be so branded. The commissioner of agriculture shall furnish to each cheese manufacturer a uniform stencil, with the words "New York State full-cream cheese," and shall register the name and location of each such factory. Any county dairymen's association may adopt a county trade mark, to be used only upon unadulterated butter or full-milk cheese. The law does not prohibit the manufacture and sale of "skimmed cheese" as such. (Ibid, secs. 31-35.)

NORTH CAROLINA.

FOODS GENERALLY.

Adulteration of foods.—The adulteration of any article of food, or the sale of such adulterated articles, is prohibited. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter, or is the product of an animal dying otherwise than by slaughter; if it is colored, or otherwise made to appear better than it really is; if falsely labeled as a foreign or as any trade-mark product; or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, if containing all necessary and no unnecessary ingredients, and if distinctly labeled as such.

No article is deemed adulterated or misbranded if (not containing injurious ingredients) it is a mixture or compound sold under its own distinctive name, or a mixture plainly marked to indicate that it is such, or if any ingredient is necessarily added, without fraud, in connection with the production or preparation of the article, provided that it be so labeled. The introduction of any adulterated or misbranded article into the State is also prohibited, and articles transported into the State in the original packages may be seized by a process of libel.

A guarantee of purity from the wholesale jobber or manufacturer is a protection to the retail dealer.

Enforcement.—The State board of agriculture is directed to enforce the law. It may prescribe standards not otherwise fixed, and set the limits of variability of articles of food. Manufacturers and dealers must furnish duly authorized agents of the board with samples. Penalty, \$10 to \$100, or imprisonment not more than 100 days, or both. (Laws of 1899, ch. 86.)

Adulterated candy and chocolate.—The law brings under the general definition adulteration of candy or chocolate with terra alba, barytes, or other mineral substances, or with poisonous colors, flavors, or other injurious ingredients.

DAIRY PRODUCTS.

Imitation butter.—It is unlawful to manufacture or sell any article in imitation of butter unless each package shall be conspicuously labeled with the chemical ingredients and their proportions. The law is not to be construed as violating the interstate commerce law. Penalty, fine not less than \$50, or imprisonment not over 30 days; for subsequent offenses, fine not less than \$200, or imprisonment not less than six months, or both. (Laws of 1895, ch. 106.)

NORTH DAKOTA.

FOODS GENERALLY.

Adulteration of food.—The law prohibits the adulteration of any article of food or drink, or any drug, with fraudulent intent, or the knowing sale of such adulterated article. (Code of 1895, sec. 7309.)

Unwholesome food.—It is a misdemeanor to sell any article of food or medicine which is tainted, decayed, or otherwise unwholesome. (Ibid., sec. 7310.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. (Laws of 1897, ch. 3.)

DAIRY PRODUCTS.

Licensing and inspection of dairies, creameries, and cheese factories.—Every person who sells milk from a dairy of 5 or more cows, in any city or town of 1,000 inhabitants or more, must be licensed by the assistant dairy and food commissioner and pay a license fee of \$1 annually. He must have his name, place of business, and the number of his license legibly placed on each outer side of all vehicles, and he must report any changes of drivers or other employees. Penalty, \$10 to \$50.

Every person before selling milk in a store, booth, stand, or market place, must be licensed in the same manner.

The assistant dairy and food commissioner, appointed by the commissioner of agriculture, and his agents, have access to all places of business used in the manufacture and sale of dairy products or imitations thereof, and authority to open packages and take samples.

All owners or managers of creameries or cheese factories and venders of milk are required to render annual reports of the amount of business done, etc. Failure or false statement is punishable by a fine of from \$10 to \$50.

Every creamery and cheese factory must procure a stencil or brand clearly designating the quality of the product manufactured, and the number and location of the factory, which shall be used on the outside of each cheese, and also upon the packages containing either cheese or butter. Such stencils or brands shall be registered with the assistant commissioner. Penalty, \$10 to \$50. (Laws of 1899, ch. 72.)

Milk.—It is unlawful to sell any unclean, adulterated, or unwholesome milk, or milk taken from a diseased animal or within 15 days before or 5 days after parturition, or to stable cows kept for producing milk or cream for sale in an unhealthful or crowded place, or to feed them on any substance which produces impure or unwholesome milk. Skimmed milk, including milk from which the strippings have been held back, must be sold as such. Milk containing less than 12 per cent of milk solids, or 3 per cent of butter fat, is regarded as skimmed milk. It is unlawful to sell as cream any article containing less than 15 per cent of butter fat. Penalty, \$20 to \$50. (Laws of 1899, ch. 72.)

Imitation butter.—It is unlawful to manufacture or sell imitation butter made wholly or partly out of any fat, oil, or oleaginous substance not produced from unadulterated milk or cream, unless in a separate and distinct form, free from coloration or ingredients which cause it to look like butter, and in such manner as will advise the consumer of its real character. Imitation butter exposed for sale must be distinctly and durably marked "oleomargarine," "butterine," or "imitation butter." Penalty, \$25 to \$100. (Ibid.)

Whoever furnishes oleomargarine or butterine in any hotel, restaurant, or boarding house, or at any lunch counter, must give notice that the substance so furnished is not butter. Penalty, \$5 to \$10. (Ibid.)

Renovated butter.—It is a misdemeanor to manufacture, sell, or expose for sale butter produced by melting and rechurning, or any similar process, and commonly known as boiled or process butter, unless the packages are distinctly marked "renovated butter" in letters of prescribed size. Penalty, \$25 to \$100. (Ibid.)

Filled and skimmed milk cheese.—Cheese manufactured from skimmed or partly skimmed milk must be plainly branded "skimmed milk cheese" in letters at least 1 inch in height and one-half inch in width. Penalty, \$20 to \$50. (Ibid.)

Filled cheese, or any oleaginous substance designed to take the place of cheese, must be stamped as such on the top and side of each package, in letters at least 1 inch long and one-half inch wide. Penalty, \$25 to \$100. (Ibid.)

OKLAHOMA.

Adulterated food.—Any person who adulterates or dilutes any article of food or drink or medicine with fraudulent intent, or who sells such adulterated articles, is guilty of a misdemeanor. (Statutes of Oklahoma, sec. 2264.)

Unwholesome food.—It is a misdemeanor to sell any article of food, drink, or medicine which is tainted or otherwise unwholesome. (Ibid., sec. 2265.)

OHIO.

FOODS GENERALLY.

Dairy and food commissioner.—Every 2 years a dairy and food commissioner is elected by the people. His salary is \$2,000. He may appoint 2 assistants at a salary not over \$1,000 each, and necessary experts and inspectors. It is the duty of these officers to enforce the pure-food laws generally, and they have power to enter any establishment where food or drink is made or sold, to examine the books, open containers, and take samples. (83 Ohio Laws, p. 120, 1886, as amended; see Gianque's Rev. Stats., secs. 8847-8850.)

Adulteration of foods and drugs.—The adulteration of any article of food or of any drug, or the sale of such adulterated articles, is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopœia or by such other pharmacopœia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient or ingredient injurious to health.

The law does not apply to harmless mixtures or compounds recognized as ordinary articles of food if each package is distinctly labeled as such, with the name and percentage of each ingredient.

Every person manufacturing or selling food or drugs must furnish to anyone interested a sample for analysis.

Penalty for violation, \$25 to \$100, or imprisonment 30 to 100 days, or both, with costs of inspection and analysis. (81 Ohio Laws, p. 67, 1884.)

Unwholesome food.—The law prohibits the sale of diseased or unwholesome provisions, unless their condition is made known to the buyer. Penalty, not over \$50 or imprisonment not over 20 days, or both. It is also forbidden to feed any animal of a kind used for human food with flesh which is in an unwholesome condition. (92 Ohio Laws, p. 97, 1896.)

Veal.—No person shall slaughter a calf for food unless it is in healthy condition and at least 4 weeks of age, nor shall any person sell the flesh of a calf not conforming to these conditions. It is unlawful to ship to or from any part of the State the carcass of a calf unless the name of the person who raised it, the name of the shipper, and the age of the calf be stated on an attached tag. (Laws of 1898, ch. 491.)

Vinegar.—No vinegar shall be sold as cider vinegar which is not the legitimate product of pure apple juice, or which contains less than 2 per cent of cider vinegar solids. All vinegar shall be made exclusively from the fruit or grain from which it purports to be made, and shall contain not less than 4 per cent of acetic acid. Cider vinegar shall be branded as such. Vinegar made by fermentation without distillation shall be branded "fermented vinegar" with the name of the substance from which it is made. Vinegar made wholly or in part from distilled liquor shall be branded "distilled vinegar" and shall be free from coloring matter. Fermented vinegar must contain not less than 2 per cent of fruit or grain solids. No person shall manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredients. All packages containing vinegar shall be branded with the name and residence of the manufacturer, except in the case of the farmers manufacturing not over 25 barrels yearly.

Penalty, \$50 to \$100 or imprisonment 30 to 100 days, or both. (92 O. L., p. 100, 1896.)

Domestic wine.—All liquors denominated as wine and containing alcohol not produced by natural fermentation or by authorized methods of compounding, or containing glucose, starch sugar, cider, or pomace of grapes, or wine into which carbonic-acid gas, alum, or other enumerated substances or any antiseptic, coloring matter, essence or injurious substance has been introduced, is deemed adulterated. "Pure wine" means the fermented juice of undried grapes without addition of water or any foreign substance. The fermented juice of undried grapes to which has been added pure sugar, or other things necessary for clarifying and refining it, not injurious to health, and which contains not less than 75 per cent of pure grape juice and is free from artificial flavoring, shall be known and branded as "wine." Wines otherwise pure, but containing less than 75 per cent of pure grape juice, and wines containing alcohol not produced by the natural fermentation of grapes, shall be branded "compounded."

For sale of adulterated wine as thus defined or for misbranding of other grades of wine a fine of \$100 to \$1,000 or imprisonment 30 days to 6 months, or both, may be inflicted, and in addition a penalty of 50 cents for each gallon sold or manufactured. (86 Ohio Laws, p. 96, 1889, as amended by 88 Ohio Laws, p. 231; compare Rev. Stats., sec. 7081.)

Maple sugar and sirup.—No person shall manufacture or sell as maple sugar or sirup any article which is not pure maple sugar or sirup. It is unlawful to manufacture or sell as sugar or as sirup any article made of maple sugar or sirup mixed with other ingredients. (Laws of 1898, ch. 194.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk to which any foreign substance has been added or milk from diseased cows. Skimmed milk may be sold only from cans conspicuously marked as such with letters not less than 1 inch long. Milk containing less than 12 per cent of solids or 3 per cent of fat is deemed adulterated, except during May and June, when the standard is 11½ per cent of solids. Penalty, \$50 to \$200 for first offense; for subsequent offenses higher penalties are imposed. (86 Ohio Laws, p. 229, 1889, as amended by 92 Ohio Laws, p. 149.)

Canned goods.—Every can of fruit or vegetables must be marked with the name of the packer or dealer, and with an indication of the grade or quality. All soaked goods or goods put up from products dried before canning shall be marked "soaked" in letters not less than two-line pica size. Penalty, not less than \$50 for dealers and not less than \$500 nor more than \$1,000 for manufacturers. (82 Ohio Laws, p. 163, 1885, as amended by 83 Ohio Laws, pp. 10, 73.)

Imitation butter and cheese.—No person shall manufacture or sell any article in imitation of butter or cheese not produced from pure milk or cream, nor shall any person compound with or add to milk, cream, or butter any acid or other deleterious substances or any foreign fats. Oleomargarine may be sold in a separate form in such manner as will advise the consumer of its real character, and free from coloring matter.

Imitations of butter or cheese must have marked on each package, in capital letters not less than five-line pica size, the true name of the article and the name of each ingredient. Each purchaser must be furnished a label of a similar character. The words "butter," "creamery," or "dairy" shall not be used on any package containing an imitation product.

Dealers in imitation butter or cheese must keep conspicuously posted a notice to that effect. Keepers of hotels, boarding houses, etc., who use or serve these imitations must also display a conspicuous notice of the fact.

Various penalties of fine and imprisonment are imposed for the violation of these laws. (83 Ohio Laws, p. 178, 1886; as amended by 84 Ohio Laws, p. 182; 85 Ohio Laws, p. 74; also 87 Ohio Laws, p. 51, 1890; and 91 Ohio Laws, p. 274, 1894, as amended by 92 Ohio Laws, p. 93.)

Cheese.—It is unlawful to sell any article as cheese not made exclusively of milk or cream, or containing fats or oils not produced from milk or cream, unless the words "filled cheese" are marked in letters not less than 1 inch long on each cheese. Cheese made from milk but containing less than 20 per cent of butter fat shall be similarly marked "skimmed cheese." Each retail purchaser of filled or skimmed cheese must be given a label with its proper name. In addition the exposed contents of every opened parcel of such cheese must be conspicuously marked. Dealers in filled or skimmed cheese must have a conspicuous sign, to the effect that these articles are sold, posted in each place of business or on each vehicle used for sale or delivery. Hotel and restaurant keepers serving these articles must notify their guests of their character. It is also unlawful to sell to any person asking for cheese any other than pure cheese containing more than 20 per cent of butter fat.

Every manufacturer of full milk cheese may brand it as such with the date of manufacture. The food and dairy commissioner shall issue to cheese manufacturers a uniform stencil with the words "Ohio State full cream cheese," and a number for each factory. Various penalties, fine and imprisonment, are imposed for violations of these provisions. (92 Ohio Laws, p. 51, 1896, as amended by 93 Ohio Laws, p. 89.)

OREGON.

FOODS GENERALLY.

Adulterated foods.—It is unlawful to sell or expose for sale any adulterated food, drink, medicine, or fertilizer, unless it is plainly marked to establish its true character. In any public dining or eating room where adulterated foods or drinks are

used the bill of fare must state the fact, or, if no bill of fare is used, printed notice must be conspicuously posted.

An article of food, drink, or medicine is deemed to be adulterated if any substance has been mixed with it so as to injuriously affect its quality or strength; if any inferior or cheaper substance has been substituted in it; if a valuable constituent has been abstracted from it; if it is in imitation of or sold under the name of another article; if it is colored, coated, polished, or powdered whereby it is made to appear better than it really is; if it falls below the standards prescribed by the law for dairy products and vinegar, or, in the case of jellies, jams, and fruit sauce, if it contains any other ingredients than pure food substances.

Vinegar.—Apple cider vinegar must be made of nothing else than absolute apple cider, have an acidity of not less than 4.5 per cent of absolute acetic acid, and contain 2 per cent of cider vinegar solids.

Dairy and food commissioner.—The enforcement of the pure-food laws is intrusted to the dairy and food commissioner, who has authority to appoint one deputy in each county. The commissioner and his agents have access to all places used in the manufacture, production, and sale of any foods, medicines, and fertilizers, and authority to open packages and to require samples.

Penalties.—For violating any of the provisions of the Oregon food law, including those relating to dairy products and their imitations, the legal penalty is a fine of \$25 to \$100, or imprisonment from 30 days to 6 months. (Laws of 1899, pp. 46-49.)

Candy.—It is a misdemeanor to manufacture or sell confectionery adulterated with terra alba, barytes, talc, or other mineral substance, or with poisonous colors or flavors or other injurious ingredients. Penalty, not exceeding \$100, or imprisonment not exceeding 6 months, and forfeiture of the adulterated candy. (Laws of 1899, p. 45.)

DAIRY PRODUCTS.

Dairy products.—The following standards are prescribed for dairy products: Milk must contain 3 per cent of butter fat, 9 per cent of other solids, and not more than 88 per cent of water, and have a specific gravity of 1.038 after the cream has been removed. Cream must contain 20 per cent of butter fat. Condensed milk must be made only from pure milk. Cheese must have 40 per cent of butter fat. Butter must not have more than 14 per cent of water.

Milk drawn from cows within 15 days before or 5 days after parturition, or from cows fed on unwholesome food, is deemed impure and unwholesome. Cows kept in stables for dairy purposes must be allowed at least 800 cubic feet of air space each, and must not be confined closer together than 6 feet, if facing each other, unless there is an air-tight partition between them. The stables must be well ventilated and kept in good condition. If any dairy is found in a filthy or unhealthy condition the proprietor may be required to put it in good condition, and in case of his failure to do so within 8 days, the dairy and food commissioner may have the work done at the proprietor's expense.

It is unlawful to use the boxes or brands of any creamery or dairyman for the purpose of selling the butter of any other creamery or dairyman. (Laws of 1899, pp. 47, 49.)

Imitation butter and cheese.—Every person who sells oleomargarine or other imitation dairy product is required to keep a sale book in which shall be shown the amounts sold and the names and addresses of the purchasers, and which shall be open to the inspection of the State dairy officials at all times. Every manufacturer of butter or cheese for sale in quantities exceeding 25 pounds a week, must report annually to the dairy and food commissioner the number of pounds of milk used in the manufacture of each, and the number of pounds of butter and cheese made and sold; but the amounts made shall not be published if the maker requests otherwise. (Ibid., pp. 49, 50.)

Process and tub butter.—It is unlawful to expose for sale reworked or mixed butter, unless it is plainly marked "process butter," or to expose for sale tub or packed butter remolded in prints, rolls, or squares, unless it is plainly marked "tub butter." It is unlawful to mark reworked, mixed, packed, or remolded butter with the stamp of any creamery, or with the words "creamery butter." (Ibid., p. 46.)

PENNSYLVANIA.

FOODS GENERALLY.

Dairy and food commissioner.—The State board of agriculture is to appoint biennially a dairy and food commissioner, whose salary shall be \$2,000. With the approval of the board, he may appoint assistants, agents, chemists, and experts. These officers are to enforce all the laws relating to foods. They have the right

to enter premises where articles of food or drugs are manufactured or sold, and to open packages and take samples. (Laws of 1893, ch. 96; Laws of 1895, ch. 457.)

Adulteration of food.—The adulteration of any article of food or the sale of such adulterated articles is prohibited. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, and if distinctly labeled as such.

Every person manufacturing or selling any article of food shall furnish any one interested and tendering payment a sample for analysis. Penalty for violation, \$50 to \$100, or imprisonment not over 30 to 90 days, or both, with costs of inspection and analysis. (Laws of 1895, ch. 233.)

Adulterated drugs.—Pennsylvania has a separate and detailed law prohibiting the adulteration of drugs. A drug is deemed adulterated if any substance has been mixed with it so as to lower its character; if any substance has been abstracted from it; if any inferior substance has been substituted in it; if it is an imitation; if it fails to correspond to the recognized standard of the United States Pharmacopœia or certain other enumerated standard works.

The State pharmaceutical examining board is empowered to employ a chemist to examine samples and to enforce the law. (Laws of 1897, p. 85.)

Unwholesome foods.—It is a misdemeanor to sell tainted or unwholesome food or the flesh of any calf killed under the age of 3 weeks. (Pepper and Lewis's Digest, 1894, p. 2876.)

Vinegar.—It is unlawful to sell as cider vinegar any vinegar which is not made exclusively from pure apple juice, or which contains less than 1.5 per cent of cider vinegar solids. All vinegar shall be made wholly from the fruit or grain from which it is represented to be made, and shall contain not less than 4 per cent of absolute acetic acid. Vinegar made by fermentation shall be branded as such; vinegar made by distillation shall be branded "distilled vinegar" and shall be free from added coloring matter. Fermented vinegar shall contain 1.5 per cent of solids. All vinegar shall be free from poisonous or injurious ingredients, and each package shall be distinctly marked with the name and residence of the manufacturer. The dairy and food commissioner is to enforce the law.

Penalty for first offense, \$50 to \$100, or imprisonment 10 to 30 days, or both; subsequent offenses, \$100 and imprisonment 30 days. (Laws of 1897, ch. 140.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. No action shall be maintained for the value of any candy or confectionery adulterated in violation of law. (Laws of 1887, p. 157.)

Lard.—The law prohibits the manufacture or sale of any article in imitation of lard, not produced from pure fat of swine, under the label "pure," "refined," or "family," or unless each package is labeled "compound lard" in letters not less than one-half inch long. Penalty, \$50 for first offense; \$100 for subsequent offenses. (Laws of 1891, ch. 186.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of impure, adulterated, or unwholesome milk, or the adulteration of milk. Milk produced from cows fed on distillery waste or on any substance in a state of putrefaction is deemed unwholesome. No person shall deal in milk in any town or city of more than 1,000 inhabitants without having each vehicle conspicuously marked with his name and the place whence the milk is obtained. Penalty for violation, not more than \$20. (Laws of 1878, ch. 183.)

It is also unlawful to sell milk or cream to which has been added boracic acid or salicylic acid, or any other injurious substance for the purpose of artificially coloring it. Penalty, \$50 to \$100, or imprisonment not over 60 days, or both. (Laws of 1897, p. 142.)

A special law prohibits the furnishing to any creamery or cheese factory of adulterated, impure, or skimmed milk, or milk that is tainted or partially sour. (Laws of 1881, ch. 116.)

Imitation butter.—The manufacture or sale of any product, in imitation of yellow butter, containing fat, oil, or oleaginous substance not produced from milk or cream, is prohibited. The manufacture or sale of oleomargarine or butterine free from coloration, and in such manner as will advise the consumer of its real

character is permitted if it be marked "oleomargarine" or "butterine" on the outside of each tub or package in a conspicuous place. Every retail package must have a wrapper plainly stamped.

Every manufacturer or dealer in imitation butter must obtain a license from the dairy and food commissioner. The annual license fees are: Manufacturer, \$1,000; wholesaler, \$500; retailer, \$100; restaurant or hotel, \$50; boarding house, \$10. Every manufacturer is also to procure from the dairy and food commissioner a sign or signs clearly setting forth that he manufactures or sells oleomargarine or butterine, which shall be hung in a conspicuous place.

Penalty, \$100 and costs, including expenses of inspection and analysis, recoverable by civil action. Violation of the act is also a misdemeanor, the penalty being a fine of \$100 to \$500 for the first offense, and fine or imprisonment, or both, for any subsequent offense. (Laws of 1899, No. 136.)

Process butter.—Butter produced by melting and by emulsion or other process, commonly known as "boiled" or "process" butter, must be plainly labeled "renovated butter" in conspicuous letters on wrappers of prints or rolls, on the top and two sides of receptacles, or on a placard attached to the mass in case of uncovered butter. The dairy and food commissioner is charged with the enforcement of the law.

Penalty, \$25 to \$100 and costs, including expense of inspection and analysis, recoverable by an action. Violation of the act is also a misdemeanor, for which the penalty is not more than \$100, or imprisonment for not more than 30 days, or both, for the first offense, and \$100 fine and imprisonment for 30 days for every subsequent offense. (Laws of 1899, No. 121.)

Cheese.—It is unlawful to manufacture or sell cheese not the legitimate product of pure milk or cream, or into which foreign fats or substances have been introduced. Cheese containing not less than 32 per cent of butter fat shall be branded "full cream;" cheese containing 24 per cent, "three-fourths cream;" 16 per cent, "half cream;" 8 per cent, "one-fourth cream;" less than 8 per cent, "skimmed cheese." The dairy and food commissioner is to enforce the law. (Laws of 1897, ch. 164.)

Dairy products in State institutions.—It is unlawful to use imitation butter or cheese in any charitable or penal institution. (Laws of 1893, ch. 112.)

RHODE ISLAND.

FOODS GENERALLY.

Adulterated food.—Any person who shall adulterate an article of food or drink, or shall sell such adulterated article, shall be imprisoned not exceeding 6 months or fined not exceeding \$200. (General Laws, 1896, ch. 282.)

Unwholesome food.—The sale of diseased or unwholesome provisions without making their character known to the buyer is punishable by imprisonment not over 6 months or fine not over \$200. (Ibid.)

The law prohibits the killing for sale or the sale of the flesh of any calf less than 4 weeks old. Penalty, not over \$20. (Ibid.)

Adulteration of liquors.—It is unlawful to sell adulterated spirituous or intoxicating liquors, or liquors of a quality inferior to what they are represented to be. A special provision with higher penalty prohibits the sale of liquors adulterated with injurious ingredients. Adulterated liquors shall be forfeited to the State. The governor shall annually appoint a State assayer of liquors to analyze liquors on the application of the prosecuting officers. (General Laws, ch. 151.)

Vinegar.—It is unlawful to sell as cider vinegar any article not made exclusively from apple cider, or cider vinegar containing less than 2 per cent of cider-vinegar solids. All vinegar shall have an acidity equal to 4.5 per cent of acetic acid, and shall be free from artificial coloring matter. Inspectors of milk and other local officers are given power to enforce the law. A fee of 25 cents shall be paid by the owner for each barrel of vinegar inspected. Penalty, not over \$100. (General Laws, 1896, ch. 148.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. (Laws of 1896, ch. 350.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk adulterated with any foreign substance, or of milk produced from cows fed upon distillery waste or other unwholesome substances, or from diseased cows. Skimmed milk may be sold only from cans distinctly marked as such in letters not less than 1 inch high. The milk standard

is 12 per cent of milk solids and $2\frac{1}{4}$ per cent of butter fat. Penalty for violation, \$20 for the first offense, and \$20 and imprisonment for 10 days for subsequent offenses.

Local authorities are empowered to appoint milk inspectors. Every inspector shall record the name and place of office of each person engaged in the sale of milk, and he has power to enter any place where milk is kept or sold and take samples. In doing so he shall deliver one sealed sample to the owner. Milk dealers must have their names and places of business conspicuously placed upon all vehicles used for delivering milk. (General Laws, ch. 147, secs. 8-8.)

Imitation butter.—It is unlawful to manufacture or sell any article in imitation of butter not made exclusively from milk or cream, or any article into which melted butter has been introduced, unless each package be distinctly stamped with the word "oleomargarine" in letters at least one-half inch long, and unless each retail sale be accompanied by a similar label. Penalty, not over \$100, one-half to go to complainant. (General Laws, 1896, ch. 146, sec. 4.)

SOUTH CAROLINA.

FOODS GENERALLY.

Adulteration of foods.—The adulteration of any article of food or of any drug or the sale of such adulterated articles is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopoeia or of such other pharmacopoeia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, and if distinctly labeled as such, with the names of the ingredients.

The State board of health may from time to time declare certain articles exempt from the provisions of the law. It may also prescribe the limits of variability permissible in any article.

Enforcement.—The State board of health shall enforce the law and may appoint inspectors, analysts, and chemists for that purpose. The board shall take necessary measures to facilitate carrying out the law. Every manufacturer or dealer in food shall furnish to any officer of the board tendering its value a sample of any article for analysis. Penalty, for violation, not over \$50, or imprisonment not over 15 days, for the first offense, with higher penalties for subsequent offenses. (Acts of 1898, ch. 504.)

Adulterated liquors.—The general pure food law includes, as a special definition under adulteration, spirituous or fermented liquors containing any ingredient not normal or healthful, or liquors not conforming to the standard required by the laws of the State. (Ibid.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. (Acts of 1896, ch. 95.)

DAIRY PRODUCTS.

Milk.—It is unlawful to sell impure, unwholesome, adulterated, or skimmed milk, or milk from which the strippings have been withheld, or milk from diseased cows. The milk standard is 3 per cent of butter fat and $8\frac{1}{4}$ per cent of other solids. Penalty, \$10 to \$100, one-half to go to the informer. (Acts of 1896, ch. 96.)

Imitation butter and cheese.—It is unlawful to sell any imitation of butter or cheese as genuine. No person shall coat or color with annatto, or otherwise, any substance designed to be used as a substitute for butter or cheese, or shall mix foreign fats with butter or cheese, or otherwise cause it to resemble yellow butter or cheese. No person shall sell imitation butter or cheese made in violation of the law. Persons lawfully manufacturing these imitations must mark each package on the top and side "substitute for butter" or "substitute for cheese," in letters not less than 1 inch long, and no person shall have in possession except for family use any substitute not so marked. Hotel and restaurant keepers using these substitutes must keep a notice conspicuously posted to that effect. Penalty for violation, \$10 to \$100, one-half to go to the informer. (Acts of 1896, ch. 96.)

SOUTH DAKOTA.

FOODS GENERALLY.

Adulteration of food.—An article is deemed adulterated if it is mixed with any substance so that its quality is injured, if any inferior substance is substituted in it, if any valuable ingredient has been abstracted, if it is an imitation, if it has been treated so as to conceal inferiority, or if any substance has been added which renders it injurious to health. It is unlawful to sell such adulterated articles unless clearly labeled "Adulterated," with the name and place of business of the manufacturer. Penalty, \$25 to \$50 or imprisonment 30 to 90 days. (Laws of 1899, ch. 89.)

Another law which is not expressly repealed has somewhat different definitions of adulterations, but likewise requires notice of the fact of adulteration, together with the names of the ingredients, to be furnished to the purchaser. (Laws of 1897, ch. 65.)

Unwholesome food.—No person shall sell diseased, corrupted, or unwholesome food without making its character known to the buyer. Penalty, \$100 to \$200 or imprisonment 3 to 6 months. (Laws of 1897, ch. 65.)

Vinegar.—No vinegar shall be sold as cider vinegar which is not the legitimate product of pure apple juice or which contains less than 2 per cent of cider vinegar solids. All vinegar shall contain not less than $4\frac{1}{2}$ per cent of absolute acetic acid. Cider vinegar shall be branded as such with the name and residence of the manufacturer.

No person shall manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredients. All packages containing vinegar shall be branded with the name and residence of the manufacturer and its strength as measured by the number of grains of bicarbonate of potash required to neutralize one fluid ounce. Penalty, \$50 to \$100 or imprisonment 30 to 100 days, or both. Laws of 1899, ch. 89.

Honey.—It is unlawful to sell honey compounded from or mixed with glucose, sirup, or other substances not the legitimate product of the honey bee unless each package be marked with the name of the manufacturer and of the substances from which it is manufactured. Honey made by bees fed upon glucose, sugar, or other similar substances must be marked with the substances from which the honey is stored. (Ibid.)

Lard.—It is unlawful to manufacture or sell any imitation of lard or similar compound not produced wholly from the fat of swine unless each package shall be distinctly labeled in letters not less than 1 inch long with the name and location of the manufacturer and the words "Lard substitute," together with the names and approximate proportions of the constituents. Lard which is adulterated with other animal or vegetable fats shall be similarly labeled "Adulterated lard." Retail dealers must place a similar label upon each package sold. Proprietors of hotels and restaurants, and manufacturers of articles of food using substitutes for or adulterations of lard must furnish to each purchaser or guest a card or must maintain a conspicuous notice to that effect. The act does not apply to cottolene if labeled as such and containing no substances injurious to health. (Ibid.)

Spices and condiments.—No person shall manufacture or sell spices or condiments adulterated with any foreign substances unless each package be marked with the name and location of the manufacturer and the words "Mixture" and "Adulterated." (Ibid.)

Adulteration of food jellies.—It is unlawful to manufacture or sell food jellies adulterated with any foreign substances unless each can or other package shall be distinctly labeled in double-pica type with the name of the manufacturer, his place of business, and the words "Mixture" and "Adulterated." (Ibid.)

Baking powder.—The law prohibits the manufacture or sale of baking powder containing alum unless each package is distinctly labeled with the words, "This baking powder contains alum." (Ibid.)

DAIRY PRODUCTS.

Imitation butter.—It is unlawful to manufacture or sell any compound of fats and oils in imitation of butter and not made from pure milk or cream. Oleomargarine may be sold in a separate and distinct form and must be colored pink. Hotel and restaurant keepers furnishing imitations to their guests must notify each guest that the substance is not genuine. Penalty, \$100 to \$200 or imprisonment 3 to 6 months; for hotel keepers, etc., \$10 to \$50. (Laws of 1897, ch. 65.)

TENNESSEE.

FOODS GENERALLY.

Adulterated food.—It is unlawful to manufacture or sell adulterated or misbranded food under penalty of fine of \$25 to \$100 for the first offense and not less than \$200 or imprisonment not over 1 year or both for subsequent offenses. The term misbranded is defined in the law. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient or ingredient injurious to health. The law does not apply to articles not containing poisonous ingredients, if they are mixtures or compounds known as ordinary articles of food; or if they are properly labeled to indicate that they are mixtures or compounds; or if any substance is unavoidably or necessarily mixed with them in preparation, provided they are so marked.

Enforcement.—The State board of health is directed to establish a chemical and biological laboratory and to employ expert assistants. The board of health shall enforce the law, and shall report any adulteration which it discovers to the proper county attorney, who must bring proceedings at once. It shall also publish the results of analyses. Every person manufacturing or selling food must furnish samples on demand to any authorized representative of the board. Samples shall be divided into 3 parts, each of which shall be sealed, one given to the dealer, one to the district attorney, and one to the board of health. (Laws of 1897, ch. 45.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. The offender is guilty of a misdemeanor, and shall be fined not more than \$500. The adulterated article shall be confiscated by the State and destroyed under the direction of the court. (Laws of 1887, ch. 33.)

Imitation butter.—The law prohibits the sale of any compound, in imitation of butter, not produced exclusively from pure milk or cream, unless each package shall be labeled "Imitation butter," "Oleomargarine," or "Butterine" in letters not less than one-half inch long upon the top, side, and bottom. Each retail sale shall be accompanied by a label or wrapper similarly marked. It is unlawful to manufacture or sell any imitation of yellow butter; but oleomargarine and similar substances may be sold in distinct form, free from coloration or ingredient that causes them to look like butter. Penalty, \$50 for first offense; \$100 for subsequent offenses. (Laws of 1895, ch. 101.)

TEXAS.

Mixed flour, etc.—Every manufacturer or dealer in manufactured wheat or corn products, or any flour, meal, or feed made from wheat or corn, in original packages, is required to have the packages marked with the name and actual net weight of the contents in legible letters and figures not less than 2 inches in size; and all adulterated wheat or corn products must have the word "Adulterated" stamped upon the sacks or barrels. Penalty, \$25 to \$1,000. (Laws of 1899, ch. 167.)

UTAH.

FOODS GENERALLY.

State dairy and food commissioner.—The governor is to appoint biennially a dairy and food commissioner, whose salary shall be \$600, and whose duty it shall be to enforce the pure food laws. He has power to enter any place where foods are manufactured or sold, to open any package, and to take samples. Detailed provisions regarding search warrants and prosecutions under the dairy laws are also enacted. (Rev. Stats., 1898, secs. 744-746, 2446-2450.)

Adulterated food.—It is a misdemeanor to adulterate or dilute any article of food, drink, or medicine with fraudulent intent, or to sell such adulterated article as pure. (Ibid., sec. 4288.)

Unwholesome food.—It is a misdemeanor to sell any article of food or medicine which is tainted or otherwise unwholesome. (Ibid., sec. 4290.)

Vinegar.—It is unlawful to manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredient, or cider vinegar which is not the legit-

imate product of pure apple juice. All vinegar except cider vinegar shall have an acidity equal to 4.5 per cent of acetic acid, and cider vinegar shall contain not less than 2 per cent of cider vinegar solids. Every barrel of vinegar must be conspicuously marked with the name and the place of business of the manufacturer, the kind of vinegar, and the percentage of acetic acid. Violation of the law is a misdemeanor. (Ibid., secs. 4283-4287, as amended by the Laws of 1899, ch. 63.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other substances, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$500. (Ibid., sec. 4289.)

DAIRY PRODUCTS.

Chemicals in dairy products.—The law prohibits introduction into milk, cream, butter, or cheese of boracic acid, salicylic acid, or other chemicals injurious to health. Penalty, \$10 to \$100. (Ibid., sec. 783.)

Milk.—It is unlawful to sell as pure any milk which is adulterated or from which any part of the cream has been taken, or milk which is unwholesome or taken from any cow having disease. Penalty, \$10 to \$100. (Rev. Stats., 1898, secs. 729, 730-782.)

No person shall feed dairy cattle with swill, brewers' malt, distillery waste, or other substance tending to produce unwholesome milk. (Laws of 1899, ch. 53.)

Imitation butter.—The law prohibits the manufacture or sale of any article in imitation of yellow butter not produced from pure milk or cream. Oleomargarine may be sold in distinct form in such manner as to advise the consumer of its character, free from coloration or ingredient that makes it look like butter and from any word or brand tending to deceive the consumer. Penalty for first offense, not less than \$25; for subsequent offenses, not less than \$50, or imprisonment not less than 10 days, or both.

Oleomargarine and butterine shall be conspicuously marked, in letters not less than 1 inch long, with their true name, both upon the package and upon the exposed contents during sale. Dealers in imitation products shall maintain a conspicuous sign to that effect upon their places of business and upon their delivery wagons. Keepers of hotels, etc., furnishing imitation butter to their patrons shall give each guest notice. Penalty, \$25 to \$50, or imprisonment not less than 10 days, or both. (Rev. Stats., 1898, secs. 736-742.)

Filled and skimmed cheese.—No person shall manufacture or sell cheese which is made from skimmed milk to which any foreign fat has been added. (Ibid., sec. 784.)

No person shall manufacture or sell cheese made from milk from which any of the fats have been removed, unless each cheese shall be not less than 9 nor more than 11 inches in diameter, and not less than 9 inches high. (Ibid., sec. 785.)

Dairy products in State institutions.—No imitation butter or cheese shall be used in any State, charitable, or penal institution. (Ibid.)

VERMONT.

FOODS GENERALLY.

Adulteration of food.—It is unlawful to adulterate any article of food or drink or any drug with a substance injurious to health or to sell such adulterated articles. Penalty, not over \$300 or not more than 2 years' imprisonment. (Statutes, 1894, secs. 5075, 5076.)

Unwholesome food.—The law prohibits the sale of diseased, corrupt, or unwholesome provisions, or of the flesh of any calf killed before the age of 4 weeks. Penalty, not over \$300 or not more than 6 months' imprisonment. (Statutes, 1894, sec. 5073.)

Maple sugar and honey.—It is unlawful to manufacture or sell maple sugar or sirup, or honey, adulterated with cane sugar, glucose, or otherwise. Penalty, \$50 to \$200. (Ibid., sec. 4344.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substances, or with colors or flavors of other ingredients injurious to health. Penalty, \$50 to \$100. (Ibid., sec. 4345.)

Flour and meal.—The law prohibits the manufacture or sale of meal or ground grain adulterated with any substance whatever unless the true ingredients be plainly marked upon each package. Penalty, \$25 to \$100. (Ibid., sec. 4343.)

Adulterated lard.—It is unlawful to manufacture or sell any substance resembling lard not the pure product of the fat of swine in any package bearing the words "pure," "refined," or "family;" or unless the package be marked in letters not less than one-fourth inch long with the words "compound lard." Penalty, not over \$50. (Ibid., secs., 4341, 4342.)

DAIRY PRODUCTS.

Milk.—The law prohibits the sale of milk diluted or adulterated, or from which cream has been taken, or from which the strippings have been withheld. The milk standard is 12½ per cent of solids, including ¾ per cent of butter fat, except during May and June, when the solids shall be 12 per cent. The basis for payment in creameries and cheese factories is 4 per cent of butter fat. Samples of milk may be taken by any person in the presence of at least one witness, and of the person selling it, and sent to the State experiment station for analysis. Penalty, \$50 to \$300. (Statutes, 1894, secs. 4327-4338.)

Imitation butter and cheese.—No person shall manufacture or sell any combination of fats not produced exclusively from milk or cream, in imitation of butter or cheese, or shall mix with milk, cream, or butter any acid or other deleterious substance or animal or vegetable oils. Imitation butter may be sold, or served by hotel and boarding-house keepers, only if it is colored pink. Penalty, \$100 to \$300 or imprisonment 6 months for the first offense, with higher penalties for subsequent offenses. Justices of the peace may issue search warrants on the oath of any person that he has reason to suspect the sale of such adulterated articles. (Ibid., secs. 4334-4340.)

VIRGINIA.

FOODS GENERALLY.

Adulteration of food.—The adulteration of food, drink, or medicine with injurious substances, or with those intended fraudulently to increase its weight, is punishable by fine not over \$500 and imprisonment not over 1 year. (Code, 1887, sec. 3812.)

Unwholesome food.—The sale of diseased or unwholesome provisions, unless the buyer is informed of their character, is subject to imprisonment not over 6 months and fine not over \$100. (Code, sec. 3811.)

Vinegar.—It is a misdemeanor to manufacture or sell any vinegar having an acetic acidity less than 4½ per cent or which contains preparation of lead, sulphuric acid, or any other injurious substances. Cider vinegar must be made exclusively of pure apple juice, and must contain 2 per cent of cider vinegar solids. Manufacturers of cider vinegar shall brand each package with their name and place of business and with the words "cider vinegar." Penalty, \$50 to \$200. (Laws of 1889-90, p. 34.)

Cider.—Cider which is made exclusively of pure apple juice, with such ingredients as are necessary to preserve it, shall be conspicuously branded "pure apple cider." Cider containing other ingredients must be similarly branded "chemical cider." Penalty, \$20 to \$50. (Laws of 1893-94, p. 885.)

Flour.—No person shall adulterate wheat flour with corn starch, corn flour, barley flour, or other substances, or shall take orders for such adulterated flour or sell it, unless each package is plainly marked "combination" with the name and percentage of each ingredient. Penalty, \$25 to \$100, or imprisonment not less than 60 days, or both. (Laws of 1897-98, p. 493.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. Penalty, \$20 to \$200. (Laws of 1897-98, p. 50.)

Imitation butter and cheese.—The law declares it illegal to manufacture or sell any compound of fats not produced exclusively from pure milk or cream, in imitation of butter or cheese. A specific provision prohibits the coloring of any such compound with annatto or other coloring matter. The law is not designed to prohibit the sale of oleomargarine or butterine or kindred compounds in a distinct form and in such manner as to advise the consumer of their real character. The law also prohibits the mixing with milk, cream, or butter of any injurious acid or other substances, or of animal fat or vegetable oil in such a way as to imitate butter or cheese. Proprietors of bakeries, hotels, boarding houses, etc., using imitation butter in any way must post a conspicuous notice to that effect. Penalty, \$50 to \$250, or imprisonment not over 6 months. (Laws of 1891-92, p. 840; as amended by Laws of 1897-98, ch. 146.)

WASHINGTON.

FOODS GENERALLY.

Dairy and food commissioner.—The governor is to appoint a dairy and food commissioner, whose term of office is 4 years and salary \$1,500. The commissioner may appoint one or more deputies. It is the duty of these officers to inspect

articles of food and drink and to enforce the laws regarding them. They may enter any place where such articles are believed to be kept, open packages, and take samples for analysis. It is the duty of the chemist of any State institution to analyze any substance submitted to him by the dairy and food commissioner. The attorney-general or the prosecuting attorney of any county must render legal assistance when called upon.

Officers of common carriers are required to render any assistance in their power in tracing the presence of articles in violation of the dairy law.

Proprietors of creameries, cheese factories, and dairies are required to make statistical reports. (The laws relating to dairy products are combined into one act, session laws of 1899, chapter 43; the general pure-food law, chapter 113 of the laws of 1899, makes the dairy commissioner also food commissioner.)

Adulteration of foods.—The adulteration of any article of food or the sale of such adulterated article is prohibited. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is, or if it contains any added poisonous ingredient or ingredient injurious to health. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health and if distinctly labeled as such, with the names and percentages of the ingredients.

Every person manufacturing or selling any article of food shall furnish to anyone interested, on tender of payment, a sufficient sample for analysis. Penalty for violation, \$50 to \$100, or imprisonment 30 to 90 days, or both, together with costs of inspection and analysis. (Laws of 1899, chap. 113.)

DAIRY PRODUCTS.

Milk.—The law declares it unlawful to sell as pure and wholesome milk which is adulterated with water or otherwise, or which is impure or unwholesome, or which has been exposed to dangerous exhalations or discharges from persons or animals, or milk from sick cows or cows kept in a crowded and unhealthy condition, or fed upon distillery waste or other unhealthy substances, or from cows within 15 days before or 4 days after parturition. Milk from which cream has been removed may be sold only from cans or packages marked "skimmed milk" in letters at least 1 inch long. The milk standard is 3 per cent of butter fat and 8 per cent of other milk solids. Cream taken from impure milk or which contains less than 18 per cent of butter fat must not be sold.

Every person who delivers milk from vehicles must obtain a license annually from the State dairy commissioner, for which he shall pay \$1 for each vehicle used. The name, place of business, and number of license must be placed on each wagon. Persons selling milk in a store or booth must procure a similar license. Penalty for violation of law, \$25 to \$100, or imprisonment 1 or 6 months, or both.

Cheese.—The State dairy commissioner is directed to issue to cheese manufacturers a uniform stencil with the words "Washington whole cream cheese" and the number of the factory. This stencil may be used only upon cheese containing 30 per cent of butter fat and manufactured exclusively from pure and wholesome milk. Cheese containing less than 30 per cent of butter fat shall be marked "skimmed cheese" in letters not less than 1 inch high. The manufacture and sale of cheese containing less than 15 per cent of butter fat or of "filled" cheese, made by adding butter or foreign fats, is prohibited. Cheese not made in the State but sold therein must be marked so as to indicate its character. Penalty same as for milk.

Imitation butter.—It is unlawful to manufacture or sell, or to serve to patrons of a hotel or boarding house or to the inmates of a public or private school or penal institution, any article in imitation of butter which is not produced wholly from unadulterated milk or cream. Oleomargarine may be sold in a distinct form in such a manner as to advise the consumer of its character, free from coloration or ingredients which cause it to resemble butter. Hotel and boarding-house keepers may serve oleomargarine if they post a conspicuous notice to that effect. Penalty same as for milk.

Butter.—The State dairy commissioner shall issue to manufacturers of creamery butter a uniform brand with the words "Washington creamery butter" and a number for each factory. This brand may be used only on pure creamery butter.

Butter known as "process butter" may be sold only in packages marked in letters not less than 1 inch high "renovated butter." Retail dealers in such butter must keep it conspicuously marked and furnish wrappers properly marked with each parcel sold. Penalty as for imitation butter.

(Laws of 1899, ch. 43.)

WEST VIRGINIA.

Adulteration of food.—It is unlawful fraudulently to adulterate food or drink, or knowingly to sell food or drink which is not what it is represented to be. Penalty, not more than \$500, and imprisonment not more than 1 year. (Code, 1899, ch. 150, sec. 20.)

Unwholesome food.—Whoever sells knowingly unwholesome or diseased food or drink without making its character known to the buyer shall be imprisoned not more than 6 months and fined not more than \$100. (Ibid., sec. 19.)

Imitation butter and cheese.—The law prohibits the manufacture or sale of any substance in imitation of butter or cheese not made wholly from pure milk or cream, unless each package or parcel has distinctly marked its true name and the fact that it is not genuine. Each retail purchaser must be given a statement that the article is not genuine. Penalty, \$10 to \$100. (Ibid., sec. 20a.)

It is unlawful to manufacture or sell oleomargarine, imitation or adulterated butter, whether manufactured within the State or not, unless colored pink. Penalty, \$20 to \$100. (Acts of 1891, ch. 8.)

WISCONSIN.

FOODS GENERALLY.

Dairy and food commissioner.—The governor is to appoint biennially a dairy and food commissioner, whose salary shall be \$3,500 per year. The commissioner may appoint two assistants, one an expert as to dairy products and the other a practical chemist. It is the duty of these officers to enforce the laws relating to foods. They have power to enter any place where they believe food or drugs are made or sold, to open any package and take samples. On the request of the person in charge a duplicate sample shall be sealed up and delivered to him. District attorneys must prosecute violations of the pure-food law when called upon by the commissioner. The State board of health may submit to the commissioner articles of food and drugs for analysis. (Laws of 1899, ch. 452.)

Adulteration of foods.—The adulteration of any article of food or of any drug or the sale of such adulterated articles is prohibited. A drug is deemed adulterated if it differs in strength or purity from the standard fixed by the United States Pharmacopœia, or by such other pharmacopœia or standard work as recognizes the article, or if its strength or purity falls below the professed standard under which it is sold. Food is deemed adulterated if any substance has been mixed with it so as to injure its quality or strength; if any inferior substance has been substituted in it; if any valuable constituent has been taken from it; if it is an imitation; if it contains diseased or decomposed animal or vegetable matter; if it is colored or otherwise made to appear better than it really is; or if it contains any added poisonous ingredient or ingredient injurious to health not a necessary ingredient in its manufacture. Mixtures or compounds recognized as ordinary articles of food or drink may be sold if not injurious to health, if containing all necessary and no unnecessary ingredients, and if distinctly labeled as such. (Penalty, \$25 to \$100. (Laws of 1897, ch. 166.)

Unwholesome food.—Whoever sells knowingly any article of food or drink or any drug which is decayed or otherwise unwholesome, without notice to the buyer, shall be fined not over \$100 or imprisoned not over 30 days or both. (Rev. Stats., sec. 4599.)

Vinegar.—No vinegar shall be sold as cider vinegar which is not the legitimate product of pure apple juice or which contains less than 2 per cent of cider vinegar solids. All shall contain not less than 4 per cent of absolute acetic acid. No person shall manufacture or sell vinegar containing lead, sulphuric acid, or other injurious ingredients. All packages containing vinegar shall be branded with the acetic acidity of the manufacturer. Penalty, \$10 to \$100. (Laws of 1891, ch. 349.)

Canned goods.—The manufacture or sale of canned goods is prohibited unless each can, except of goods brought from foreign countries, is distinctly labeled with the name and address of the dealer and the grade of the contents. (Ibid., sec 4.)

Baking powder.—Baking powder which contains alum must be distinctly marked with the name and place of business of the manufacturer and the words "This baking powder contains alum." (Ibid., sec. 5.)

DAIRY PRODUCTS.

Generally.—The law prohibits the sale of milk or cream, butter or cheese to which boracic acid, salicylic acid, or other injurious antiseptics have been added. Penalty, \$25 to \$100. (Laws of 1895, ch. 168.)

It is not lawful for any charitable or penal institution to use or to furnish to its inmates any imitation of butter or cheese. (Laws of 1893, ch. 65.)

Milk.—The law prohibits the sale or the delivery to any butter or cheese factory, as pure and wholesome, of milk diluted or adulterated, or of unclean or impure milk, or milk from which cream has been taken or from which the strippings have been withheld, or milk from sick cows or cows kept in an unhealthy condition or fed upon unhealthy food, or cows within 15 days before or 4 days after parturition. Penalty, \$25 to \$100. (Laws of 1887, ch. 157, as amended by laws of 1899, ch. 425; Laws of 1897, ch. 106.)

No person shall sell milk drawn from sick or diseased cows, or cows kept in a filthy and unsanitary condition, or cows fed on refuse from distilleries or vinegar factories, unless such refuse be mixed with other dry sanitary food to the consistency of a thick mush. No person shall sell milk or cream having any foreign substance or coloring matter, or chemical or preservative, but viscogen or sucrate of lime may be added if the milk is so labeled as to show its true character. (Laws of 1899, ch. 313.)

Imitation butter.—The law prohibits the manufacture and sale of any compound in imitation of yellow butter which is not produced exclusively from pure milk or cream. Oleomargarine may be sold in a separate form so as to advise the consumer of its real character, free from coloration or ingredients causing it to look like butter. It is unlawful to sell an imitation to any person asking for butter. Each package containing oleomargarine or similar imitations shall be distinctly marked as such, in letters at least 1 inch long, and a similar label shall be placed across the contents of the open package when offered for sale. Persons selling such substitutes shall post conspicuously a notice, to be approved by the State dairy commissioner, to that effect. Wagons used for delivering these imitations must be similarly marked. Hotel or boarding-house keepers serving imitation butter must notify each guest of the fact.

Penalty for violation of these laws, \$50 to \$500 for the first offense; subsequent offenses, \$100 to \$500, or imprisonment 10 to 60 days, or both. (Laws of 1895, ch. 80.)

Cheese.—Every person manufacturing cheese shall distinctly mark on each package his name and the location of the factory. Cheese made from milk containing more than 8 per cent of pure butter fat shall be branded, with uniform stencils furnished by the dairy commissioner, "Wisconsin full cream cheese," and no other shall be so branded. It is unlawful to manufacture "filled" cheese produced from skimmed milk to which any foreign fat has been added. Skimmed-milk cheese may be manufactured if so conspicuously marked. Another law prohibits the manufacture of imitation cheese. Different fines and penalties are imposed for violation of these various provisions. (Laws of 1893, ch. 228; Laws of 1895, ch. 30; Laws of 1897, ch. 189.)

WYOMING.

Adulterated food.—It is unlawful to adulterate or dilute any article of food, drink, or medicine with fraudulent intent, or to sell such adulterated article as pure. Penalty not over \$500, or imprisonment not over 60 days, or both. (Rev. Stats., 1899, sec. 5109.)

Unwholesome food.—The law prohibits the sale of any article of food, drink, or medicine which is tainted or otherwise unwholesome, or the flesh of any diseased animal. Penalty, not more than \$50, or imprisonment not more than 30 days, or both. (R. S., 1899, secs. 5108, 5110.)

Adulteration of drugs.—It is a misdemeanor to adulterate any drug or medicine or to remove any ingredient in such a way as to injure its quality, or to sell such adulterated or inferior article knowingly. (R. S., 1899, sec. 2223.)

Candy.—It is unlawful to manufacture or sell candy adulterated with terra alba, barytes, or other mineral substance, or with colors or flavors or other ingredients injurious to health. Penalty, \$50 to \$100. (R. S., 1899, secs. 2668-2670.)

PART VII.

TAXATION IN VARIOUS STATES AND IN CANADA,
WITH SPECIAL REFERENCE TO THE TAXATION
OF CORPORATIONS.

A REPORT PREPARED UNDER THE DIRECTION OF THE INDUSTRIAL COMMISSION

BY

GEORGE CLAPPERTON,
EXPERT AGENT.

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TAXATION IN VARIOUS STATES.

To the Industrial Commission:

I have the honor to submit herewith a report or compendium of the systems of taxation with especial reference to corporations in each of the following States, viz: Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Wisconsin, Iowa, and Texas. These States were selected, as directed by the Commission, because of their industrial prominence and the varied character of the systems of corporate taxation therein.

It was found that one feature common to all these States, and running through all systems, namely, the general property tax, or as it has been designated, the "American system," applies not only to individual properties, but also, directly or indirectly, to a greater or less extent, to corporate property as well. This observation is doubtless true of all States in the Union.

For this reason it was deemed necessary to set forth the distinctive features of the entire system of taxation in each State applicable to general as well as corporate property, not only as a matter of information, but in order to present an intelligent and comprehensive view of the various methods for the assessment and taxation of corporations, the reasons and principles upon which they are based, and their comparative merits and results.

While in some States there is a marked tendency toward the segregation of corporate property from the general property tax, and its subjection to special methods better adapted to property of that peculiar character and reducing the taxation thereof to a rational and harmonious system, thus far the separation is nowhere complete.

An effort has been made therefore to present the characteristic features, the merits and defects, of the system in vogue in each State, and in some instances the efforts made to reform it and the difficulties encountered, giving especial attention to the taxation of corporations.

In each instance it has been necessary to examine the taxation laws, the work of legislative committees and appointive tax commissions, and a mass of public reports and records in order to present intelligently the system of taxation existing, that your Commission might in the end have a basis for suggestions and recommendations as to changes and reforms in the State systems, and as to interstate action with a view to uniformity of taxation methods applied to corporations.

This investigation has necessarily been somewhat tedious and laborious, and this report, in view of the limitation in the time allotted therefor, is submitted with the consciousness that it is not as thorough and complete as the writer would have desired and not devoid of imperfections. I trust, however, that it may serve the purpose of your Commission.

REVIEW OF CONDITIONS.

In the States hereinafter reported upon are represented substantially all the special methods thus far devised for the taxation of corporations of a quasi-public character, except that of a fixed rate upon net earnings, which is in vogue in the States of Delaware and Virginia, and advocated by some distinguished

writers upon the subject of taxation. It is a simple method, requiring no special elucidation. While, as an abstract principle, it may perhaps be regarded as theoretically correct, still, under existing economic conditions and varied business development of such corporations, and in view of the experience of some States with it, it can hardly be regarded as preferable in actual practice to that of a State tax upon gross earnings.

The inadequacy, under existing economic conditions, of the general property tax, so called, and its utter failure, even under the most rigorous and effective administrative methods that have been devised, to reach for taxation property of a corporate and intangible character, are recognized in all the States named.

It is clear that under this system there are numerous forms of wealth that do not and can not be made to bear a just share of the public burdens, and which in large part evade or escape taxation, and some forms which, when reached at all under the prevailing general property tax, are not equally and uniformly but unjustly and disproportionately taxed, as compared with other property. The inevitable result is that real estate and some forms of personalty are unduly burdened with taxation.

These conditions under the search light of aggressive investigation have engendered positive public and political agitation in many of the States, and have inclined people in every State, keenly alive to prevailing injustice, to vigorous criticism and denunciation of "tax-dodging" individuals and corporations.

While State tax officials, tax commissioners, and writers upon taxation, with considerable justification, inveigh against the efforts of individuals and corporations to evade and escape just taxation, it should in justice be said that there is a lack of appreciation of the fact that the principal cause of these conditions is inherent in the system itself, rather than in a general desire to avoid just taxation. In all the States named vast amounts of property are virtually exempt from taxation, and other property is unjustly and grievously burdened through the operation of bad systems and injudicious laws. It is useless to inveigh against tax dodgers and faulty administration unless the methods of taxing such classes of property are changed.

Representatives of corporate management and others are animated usually not so much by the fear of "equal taxation" as of unequal taxation under the prevailing systems.

Justice Cooley, in his work on Taxation, says:

The assessment of personal property reaches so small a portion of the amount really protected by Government that it might almost be said that laws for the purpose remain on the statute books rather as incentives to evasion and fraud in the dealings of the citizen with the State than as a means of raising a revenue for public purposes.

This might aptly be applied to the system for the taxation of corporations as well as intangible personalty in many of the States, *a system that puts a premium upon evasion and inflicts a penalty upon honesty and weakness.*

The remedies seem to lie in the adoption by the several States, working in harmony so far as may be, of new and modern methods based on correct principles for the taxation of special forms of property, separate and distinct from the general property tax in respect to both valuation and rates of taxation, and a thorough administration thereof.

In the States investigated there has been more or less departure from the general property tax toward the adoption of special methods for the taxation of corporations. With few exceptions, however, efforts in that direction have thus far been devoid of real method or design, and upon the whole "chaos" is the only descriptive term applicable to existing conditions in Commonwealth taxation.

There is a marked tendency in all these States toward making earning power the basis of taxation for quasi-public corporations. Properly directed, this must

be regarded as the correct principle and capable of practical application to such corporations under existing industrial conditions. There is also, however, a strong inclination to cling to the old system in part, and to use this principle in conjunction with some feature or factor of the property tax, more particularly to use earning power as a basis of property valuations in connection with property tax or "uniform" rates.

A mistaken conception of the property-tax theory of "uniformity," and a general disposition to apply the misleading iron rule of equal taxation to all forms of property, are revealed in most of these States, so far as public sentiment is concerned. As bearing upon this observation, the following is quoted from the case of *Pacific Express Company v. Seibert* (143 U. S. Supreme Court Reports, 851):

This court has repeatedly laid down the doctrine that diversity of taxation, both with respect to the amount imposed and the various species of property selected either for bearing its burdens or for being exempt from them, is not inconsistent with a perfect uniformity and equality of taxation in the proper sense of those terms; and that a system which imposes the same tax upon every species of property, irrespective of its nature, condition, or class, will be destructive of the principle of uniformity and equality in taxation and of a just adaptation of property to its burdens.

The great problem of Commonwealth taxation, of commanding interest in all States, consists practically of reform in the methods of taxing corporations and individual personality of an intangible character, and an improved administration of a circumscribed property tax.

The principles that taxes should be levied in proportion to ability to pay, and that, even under the general property system, they are designed to be upon persons rather than upon property, are generally recognized. Under existing economic conditions property is no longer regarded as an adequate test of ability to contribute to the support of the government. Hence the marked tendency to apply different tests to special classes of property owners. There is a growing class of citizens who receive large incomes or salaries, and enjoy all the advantages of society and good government, who, though possessed of abundant ability to pay taxes, are, under existing systems, practically exempt from taxation or inadequately taxed. This class is receiving and must continue to receive especial attention in the revision or reformation of taxing systems in the several States.

While a tax upon individual incomes is generally conceded to be just and equitable in principle, it has been received with disfavor and regarded as impractical in its operation. It is apparent, however, to the careful student of Commonwealth taxation, that because of its justice and the increasing efficiency of State administrative methods that are being evolved, the idea of a limited supplementary State income tax is growing in favor and coming to be more generally regarded as a practical measure under State supervision.

Such a tax has always prevailed in Massachusetts, the present law of that Commonwealth, which the legislature recently refused to abandon, imposing a tax upon so much of the income of a profession, trade, or employment as exceeds the sum of \$2,000, but exempting income derived from property subject to taxation. While this law is imperfectly administered, it is not infrequently suggested by eminent authorities upon the subject that a supplementary income tax of that character imposed directly by the States, under modern methods of administration, would become an efficient and practical source of State revenue. In conjunction with the principle of taxing corporations upon earning capacity it seems destined to receive increasing consideration in the several States.

GEORGE CLAPPERTON.

MASSACHUSETTS.

The principal source of revenue in this State, as in most others, is the general tax on property.

POLL TAX.

A peculiar feature still retained in the taxation system of this State is the poll or capitation tax levied on every male inhabitant above the age of 21 years, citizen or alien, and upon every female citizen of said age who requests to be so assessed. In the early period of our history the poll tax was quite general and popular, but gradually became obnoxious and, in some of the States, as Ohio, was prohibited by constitutional provision.

Careful provisions are made in the Massachusetts law for obtaining accurate lists of those subject to this tax, and the assessors assess upon them State and county taxes. The State tax is assessed upon the number of polls in each place until such assessment amounts to \$1 upon each poll, the remainder of said tax being then assessed upon property. County taxes are assessed in like manner. The result is that the rate of poll tax is \$3 per year throughout substantially the whole State.

Formerly the payment of this tax was made by law a condition of the exercise of the franchise and was in most part paid either by the person assessed or by political organizations. This provision was repealed by an amendment of the constitution in 1891. Since that time the collection of the poll tax from those not liable to property tax has been difficult, and in cities it is now very largely uncollectable from the persons who are not taxed upon property. Notwithstanding this, the cities and towns of the State are required to contribute their apportioned taxes, State and county, whether by poll tax or property tax, so that the resources of State and counties are not affected by failure to collect poll taxes.

The number of persons assessed for poll tax in 1896 was 723,736; the number of persons assessed for that tax only was 511,659, and the total amount of taxes assessed on polls was \$1,484,629. The total amount assessed on polls in 1898 was \$1,478,680, and in 1899, \$1,504,990.

GENERAL PROPERTY TAX.

All property, real and personal, of the inhabitants of this State not expressly exempted by law is subjected to taxation. There is the common exemption of property used for the public good, and special exemptions designed to lighten the burden of taxation upon those not able to bear it easily. Conspicuous in the latter class are the property of soldiers or sailors who served in the war of the rebellion, or their wives (exempt up to \$3,000 if they suffered certain disablements or became permanently incapacitated for manual labor, providing their estate does not exceed \$5,000); the tools of a mechanic not exceeding \$300 in value, and household furniture not exceeding \$1,000 in value.

The tax on real estate is by far the most important, nearly three-fourths of the taxes of the State being assessed on real property. The taxation of real estate is based in the usual manner upon assessment by estimate and valuation by local assessors.

There seems to be an unusual lack of uniformity in the assessed valuation of real estate in this State. The tax commission in its report of 1897 shows that taxes in many of the farming towns, as a result of industrial causes, are excessively and unfairly heavy as compared with taxes on real property in other parts of the State, real estate in some towns being assessed above its selling value and the rate often being \$16 to \$20 and sometimes more per \$1,000.

The total assessed valuation of real estate for taxation in 1896 was \$2,040,200,644. The total amount of taxes assessed upon real estate was \$30,120,780, out of a total tax assessment on polls and property of \$39,954,539.

In 1898 the assessed valuation of real estate was \$2,182,596,651. The total amount of taxes assessed upon real estate was \$33,394,643, out of a total tax assessed

on polls and property of \$43,792,878. In 1899 the total assessed valuation of real estate was \$3,247,094,547, and of personal property, including resident bank stock, \$628,926,675. The tax on real estate was \$34,188,810, out of a total tax on polls and property of \$43,088,672.

MORTGAGES.

A distinguishing feature of the method of taxing real estate is the treatment of mortgaged property. The provisions of the statute are designed to impose only one tax on real estate, whether mortgaged or not, the mode of payment of this one tax being left to adjustment between mortgagor and mortgagee. This applies only to mortgages on taxable real estate; mortgages on realty situated outside the State or on real estate within it but exempt from taxation, such as church property, are taxable as personal property to their holders. The mortgagor or mortgagee of taxable realty may make to the local assessor a statement of the amount of the mortgage and name and residence of the holder of the mortgage interest therein. The law provides that when this is done, the mortgage is to be taxed to the holder, usually at its face value, but not to an amount in excess of the fair cash value of the mortgaged property. The making of the statement, however, is optional with the mortgagor, and there is usually no inducement to make it, mortgages being invariably drawn obligating the mortgagor to pay all taxes. The mortgagee is therefore virtually exempted from taxation on the mortgage.

This method was adopted in 1881. Prior to that time both the mortgage and the mortgaged property were taxed for their full amounts to their respective owners. It is pointed out by the tax commission of 1897 that under this former method the taxation of mortgages was carried out with great uncertainty, and the larger proportion of mortgage securities held by private lenders were not in fact taxed; the rate of interest, however, was affected by the risk of taxation.

The result of the practical exemption of mortgages from taxation by the law of 1881, providing for the taxation of mortgaged real estate once for all, and permitting mortgagor and mortgagee to arrange between themselves for the payment of the taxes, was a reduction of the rate of interest, not by the average rate of taxation, but about three-quarters of 1 per cent. The competition in mortgage investments was greatly increased, and there was a general and substantial decline in the rate of interest.

The commission, after thorough investigation, recommends the retention of the present method of one tax upon mortgaged property, with right of adjustment of payment between mortgagor and mortgagee. The commission discusses "the other feasible method," that followed by the State of California. There also but one tax is imposed upon mortgaged property; the mortgagor is called upon to state the name of the mortgagee and the amount of the mortgage, each being taxed in proportion to his interest in the property, and no agreement for payment of all taxes by the mortgagor is recognized. The effect of this method, as shown by the investigation of the commission, is that while the lender is taxed upon the full amount of his mortgage, the debtor is compelled to pay a rate of interest higher by the amount of the tax and even by something more—mortgages in California usually bearing 2 per cent additional interest as compared with other loans or investments.

In view of the experience in California and general probabilities, the commission concludes that the taxation of mortgages by an unfailing process would increase the interest charged at least to the extent of the tax, and says that if the existing method is defective, in that persons of means lending on mortgages do not contribute proportionately to the public burden, the remedy should be sought in some other way. As a means of securing greater contributions from the estates of persons of means, the commission recommends an inheritance tax and an income tax estimated according to the rental value of the habitation occupied. The joint legislative committee on taxation, in its report, upon consideration of the report of the special tax commission on the subject of the taxation of mortgages, says that the present law seems to work well, and that to repeal it would be an unpardonable step backwards.

PERSONAL PROPERTY.

The statutes provide that, subject to certain exceptions hereinafter considered, "all personal estate within or without the Commonwealth shall be assessed to the owner in the city or town where he is an inhabitant on the 1st day of May." The exceptions to the rule that personal property is taxable to the owner at his

place of domicile relate to certain specified kinds taxed where situated, or where the business for which they are used is conducted. They consist in general of all goods, wares, merchandise, and other stock in trade or manufacturing within the State, whether the owners reside within or without the State. Such property is taxed where the business for which it is used is carried on, whether the owner resides there or not. The owner may reside in some other part of the State or outside the State. Stock in trade outside the State, owned by inhabitants thereof, is taxed to the owner where he lives. These provisions, however, do not apply to stock in trade owned by corporations organized within the State.

"All machinery employed in manufactures whether owned by corporations or individuals is assessed where it is situated or employed." Horses, mules, neat cattle, sheep, and swine, when kept in places other than those where the owners reside, and horses employed on stages or other vehicles for transportation of passengers, are assessed to the owner in the place where they are kept. All personal property within the State leased for profit is assessed for taxation where such property is situated, to the owner or person having possession thereof.

As to these exceptions of tangible and visible property, the statutes depart from the general rule that personalty is taxable to the owner at his place of domicile, but property of an inhabitant of the State situated without the State is treated according to the general rule.

Personal property in general is assessed for taxation by local assessors, who are directed to require all inhabitants to bring in true sworn lists of all personal estate owned by them. There is, however, no direct penalty imposed for failure to comply with this requirement, the assessors in such cases being required to ascertain, according to their best information and belief, the amount and kinds of personal estate; but from the tax assessed the taxpayer may be allowed an abatement only in case the tax exceeds by more than 50 per cent what it would have been if return under oath had been made. In actual practice, according to the best information obtainable, but a small portion of personal property, even of an intangible character, is assessed on sworn returns of taxables, the greater portion being by doomsage of local assessors.

The law defines with much detail what is personal property for the purpose of taxation. It may be classified under the following heads:

1. Goods, chattels, money, and effects, wherever they are.
2. Ships and vessels not engaged in the foreign carrying trade.
3. Money at interest and other debts due the persons to be taxed over and above what they are indebted or pay interest for. Debts secured by mortgages on taxable real estate are expressly declared to be not included in such taxable debts, and may not be used by the debtor to reduce the amount of taxable debts due him.
4. "Public stocks and securities, bonds of all railroads, including street railways, stocks in turnpikes, bridges, and moneyed corporations within or without the State." But shares in corporations chartered by the State or organized under its general laws are not taxable to the holder for State, county, city, or town purposes, the taxation of such property being secured by the general franchise tax levied on corporations.
5. Income from an annuity, from ships and vessels engaged in the foreign carrying trade, and so much of the income of a profession, trade, or employment as exceeds the sum of \$2,000 a year; but no income is taxable if derived from property subject to taxation.

Under this provision incomes from professions and salaries are taxable, and it has been held that incomes from trade, being derived from skill and management in business, as well as from the use of capital, are taxable, even though the property engaged in the business was already taxed.

The total valuation of personal property assessed for taxation by local assessors in 1896 was \$582,819,634, the amount of taxes \$8,398,980. The valuation and tax upon real estate for the same year were about three and one-half times these amounts.

In 1898 the assessed valuation of personal property was \$581,646,188, and the amount of taxes \$8,719,105. The assessed valuation of real estate in that year was about three and three-fourths times that of personalty. In 1899 the assessed valuation of personalty was \$628,926,675, and the amount of taxes \$9,344,872.

The committee on taxation of the Boston Executive Business Association reported: "The personal property of both the city and State, which under the law is subject to taxation, can not be less than twice the value of the real estate. Upon this all writers agree."

The real estate in 1896 being \$2,040,000,000 in assessed value, the personalty would, on this basis, be \$4,080,000,000, instead of \$582,000,000.

GENERAL CORPORATION TAX.

The distinctive feature of the system of taxation of corporate property in Massachusetts is that it is administered wholly or in part by officers of the State, instead of by local officers.

The general franchise tax, so called, on corporations chartered or organized under the laws of the State, designed to reach for the purpose of taxation all the property of corporations, once and once only, is the most important tax in the general system. "It is unique in the tax experience of the States of the Union."

The real estate and machinery of all corporations situated within the State are assessed by the local authorities in common with other real estate and personalty and the taxes thereon paid directly to the respective towns and cities where the property is located, the other personalty and the stock being exempt from direct local taxation.

The remainder of the property of corporations (except banks and some other corporations, taxation of which is provided for by special statutes), as determined by the market value of outstanding shares in excess of the value of real estate and machinery taxed locally, is assessed and taxed by the State directly and payment made in the first instance to the State treasury; a large portion of the taxes so raised is then distributed among the towns and cities of the State.

This annual corporation tax applies to corporations of the most various kinds, such as manufacturing and trading establishments, railroads, street railways, gas and electric-lighting companies, electric-power companies, private water-supply companies, telegraph and telephone companies, and certain insurance companies.

This general corporation tax is assessed by the tax commissioner of the State, valuation being based upon returns from the corporations and from local assessors and such other information as the commissioner may obtain.

Every corporation subject to this tax is required to return annually to the tax commissioner, under oath of its treasurer, a complete list of its shareholders and their places of residence, the number of shares owned by each, the amount of capital stock of the corporation, its place of business, the par value and the market value of its shares on the 1st day of May, and a detailed statement of the works, structures, real estate, and machinery subject to local taxation within the State; in the case of railroad and telegraph companies, the whole length of their lines and the length of so much of their lines as is within the State; in the case of other corporations, the amount, value, and location of all works, structures, real estate, and machinery owned by them subject to taxation without the State.

Returns to the tax commissioner are also made by the local assessors, showing the names of all corporations and containing statements of their property and the amounts for which such property is valued for local taxation.

From these returns or from other sources, at his discretion, he not being bound by the returns of the corporation as to the value of corporate franchises or by the returns of local assessors as to the value of the property assessed locally, the commissioner ascertains the true value of the shares of each corporation, which is designated as the "true value of its corporate franchise."

The commissioner, in certain cases, is authorized to examine the books of corporations and to examine, under oath, the treasurer and directors.

The tax commissioner then, from the aggregate value of the shares of the corporation thus determined, makes the following deductions:

First. In the case of railroads and telegraph companies whose lines extend beyond the State, he deducts such a proportion of the whole valuation as that part of the line without the State bears to the entire line, and also deducts an amount equal to the value of real estate and machinery located and subject to taxation within the State as determined by him.

Second. In the case of a telephone company, so much of the whole valuation as is proportional to the number of telephones used or controlled by it without the State is deducted, and also the value of all stock in other corporations held by it upon which it has paid a tax for the preceding year.

Third. In the case of an insurance company, the value of mortgages on real estate held by it subject to local taxation.

Fourth. In the case of all other corporations, there is deducted an amount equal to the value of the real estate and machinery subject to local taxation within or without the State.

The true value of corporate franchises, thus diminished, is then taxed at a rate which is regarded as the *average* rate of taxation in the State, determined by an apportionment of the whole amount of money to be raised by taxation upon property in the State during the current year, as returned by local officials, upon the aggregate valuation of the preceding year.

The amount of the tax thus computed on corporate excess is paid by each corporation to the State treasurer, upon notice from the tax commissioner of the amount due, thus reducing the expense of collection to a minimum.

The weakness of this system of taxation upon corporate excess is the method of determining the rate of taxation, which, theoretically fair and equal as compared with other property, is likely to be practically unequal and excessive because of the more accurate method of ascertaining the "true value" of the property assessed. The "average rate" obtained by this method is apt to be unequal and misleading, and laws similar in general provisions have in some States been held unconstitutional and void as violating the requirement of uniformity provided in State constitutions. A better method, in some respects, would be a rate fixed by law.

However, it is claimed that under penalties applied with ease and certainty these taxes are, as a rule, paid promptly and with little complaint, the corporations readily adjusting themselves to them. This tax having been paid into the State treasury is in part distributed among cities and towns of the State and in part retained by the State. Such proportion of the tax as corresponds to the number of shares of stock owned by residents of the State, as shown by the corporation's list of stockholders, or such other evidence as the tax commissioner may obtain, is paid to the several cities and towns where such shareholders reside. The remainder of this tax, representing shares of stock held outside the State, is retained in the State treasury. This apportionment of tax according to the residence of shareholders is thought to work inequitably.

Formerly these provisions applied to street-railway companies, whether chartered in or without the State, doing business within the State, but by the act of 1898 the distribution of the franchise taxes of street-railway corporations is changed from the towns where the stockholders reside to the towns where the tracks are located, in proportion to the length of tracks therein.

Foreign telegraph companies using lines within the State are required to make like returns and pay a like tax.

Mining companies chartered or organized within the State for the purpose of mining without the State are required to make sworn reports of the amount of their capital stock, and pay thereon to the State treasurer a tax of one-twentieth of 1 per cent upon their capital stock. Such companies are also required to make accurate returns, under oath, of their business and profits, and the tax commissioner, from such report or otherwise, determines the net profits or gains of each such corporation, and assesses a tax of 4 per cent upon the amount thereof.

Yield of the general corporation tax in 1896.

Net amount assessed by tax commissioner	\$3,829,528.02
Amount certified as due to cities and towns.....	2,729,665.85
Balance accruing to the State	1,099,862.17

From the excellent report of the Massachusetts tax commissioners, made in 1897, from which source we derive much of the information herein contained, we quote the following comments upon the Massachusetts system of taxing corporations, the italicizing being our own:

"We have seen that the methods of taxing corporations chartered by the State and banks are in their main lines similar. We shall accordingly consider them together.

"The taxation of shares in domestic corporations and in banks is in striking contrast with that of bonds, foreign stocks, and other securities taxable to the holder. Here there is no demand for a statement from the individual taxpayer, no damage by local assessors, *no guesswork*, no possibility of *evading or diminishing taxes by change of domicile*, no question of *double taxation*. The real estate and machinery are assessed locally, doubtless not with perfect equality and justice, but probably as carefully as would be possible under any system. The corporate excess is taxed at a *uniform rate by the State*. The taxes are *regular and certain*. They are heavy, and they yield a large revenue. The rate of taxes on corporate excess for the last 15 years has been from year to year not far from \$15 per \$1,000, or about 1½ per cent on the capital. The assessment in 1896 was \$3,829,528.02. Yet, *little complaint is heard regarding these taxes*—a signal proof that the taxpayers accommodate themselves, if not with ease, at least without serious complaint, to burdens which are *steady, regular, predictable*, and for which, in consequence, they are able to make calculations and adjust their affairs.

"The corporation tax is particularly simple, and is assessed with *unerring exactness* in the case of large and well-known corporations whose shares are regularly dealt in, and consequently have a publicly recorded value. Railways, banks, the larger manufacturing corporations, and others whose stocks are frequently quoted, are taxed without a word of inquiry, and without a *possibility of escape*. A very large number of miscellaneous corporations are in a somewhat different position. Their shares are held by a few individuals, are rarely transferred, and are without a quotable market value. In these cases the statement required by law from the corporation itself as to the market value of its shares is important. The tax commissioner may further require a transcript of the balance sheet, and other information which he deems desirable. No doubt there is a possibility of understatement by a corporation of the value of its stock, and a possibility of the manipulation of the balance sheet. There is reason to believe that sometimes taxes on corporate excess are partially evaded in this way; but the evasions are insignificant in comparison with those as to taxable securities. In any case, they affect but a small proportion of the total taxes collected from Massachusetts corporations as a whole. This part of our tax system is an excellent example of the method of taxing corporations at the source and of refraining from any dealings with the individual holder of corporate securities, a method admitted on all hands to be the *simplest, most efficient, and most equitable* in the taxation of corporate property.

"There are, however, some questions as to the present mode of distributing the proceeds on the taxes on corporate excess to which we think it necessary to call the attention of the general court. They are distributed, it will be remembered, among the several cities and towns according to the ownership of shares by their inhabitants. We have already referred to some anomalous results of this method of distribution. It causes disproportionately large sums to be turned over to a few towns much resorted to by persons of means. But even apart from this difficulty there are others which make it doubtful whether, under any circumstances, corporate excess should be made a direct source of revenue to the towns and cities.

"With many corporations there is a very large corporate excess. All railways, by an old decision of the courts, are exempt from local taxation on their right of way; and, in any case, the value of their real estate and machinery, taxable locally, is not a great proportion of their total valuation. This is even more strikingly true in the case of street railways. The cities and towns where the shareholders happen to reside, perhaps distant from the place where the enterprise is carried on, get the main benefit of the taxes.

"Disproportion of a different sort appears as to some manufacturing corporations. A mill owned by a corporation may bring to a town considerable population of working people and a need for schools, streets, sewers, and water. It is true that it may also bring some increase of the taxable dwellings, but this may be comparatively small. If in the taxation of mill property there is considerable corporate excess over and above the property locally taxed, the town feels that it is deprived of resources which should fairly be called on to aid in meeting the additional expenses.

"Still another anomaly appears with regard to trading and mercantile corporations. A firm or individual carrying on mercantile or manufacturing business is taxable locally on its real estate and machinery only. Its stock in trade simply forms a part of its general assets, and is one element among the many which go to make up the value of its shares. As mercantile corporations are likely to own little or no real estate and machinery, the corporate excess is likely to be large, and the taxes are distributed mainly to the cities and towns where the shareholders reside. In most parts of the State the shareholders reside in the cities and towns where the business is carried on, and the distribution raises no question; but in the city of Boston many mercantile corporations are owned by shareholders who reside in the suburban cities and towns. The latter get the large corporate excess, while the stock in trade is not taxable in Boston. It may be that the city of Boston does not suffer seriously from this situation, for the mercantile corporations usually occupy expensive real estate and, as tenants or owners, contribute indirectly or directly to the taxes of Boston; but the suburban cities or towns which get the corporate excess certainly seem to be little entitled to the sums turned over to them in this way.

"On the whole, the present method of distributing corporate excess seems to us to be based upon a doubtful principle and to work badly in practice. It is based on the legal fiction that the situs of personal property is the domicile of its owner. But this theory has already been disregarded, so far as the tax laws are concerned, in various ways. It is not followed in the provisions as to stock in trade, live

stock, and machinery, or in the taxation of savings banks and of insurance companies. It results in an arbitrary apportionment of large sums of money with little visible regard to the real claims and needs of the several cities and towns. We shall accordingly make recommendations for a change in this part of the tax system—for the retention of the tax on corporate excess by the State in the first instance and for the utilization of the general financial resources of the State with a regard to the just needs of the local bodies."

These recommendations have not been adopted by the legislature.

RAILROADS.

This class of property is assessed by the State tax commissioner as a unit upon "the true value of its corporate franchise," based upon verified reports and such other information as the commissioner may obtain, at the "average rate" throughout the State.

This is in lieu of all other taxes upon the property within the right of way, 5 rods in width, but all property outside this right of way is taxed locally, as other property. The value of real estate and machinery outside of this right of way, assessed by local assessors throughout the State in 1899, was \$69,027,535, and the average rate was about \$15.78 per \$1,000, yielding about \$1,089,254 in local taxes.

The tax on corporate franchises of railroads in 1899 was \$1,631,854.46, making a total tax of \$2,720,608.

SUMMARY OF RESULTS.

The following is a summary of the results of the corporation-tax law for the year 1898:

General list	\$4, 184, 240. 72
Coal mining, quarrying, and oil companies	7, 785. 66
Foreign railroad taxes.....	26, 749. 00
	4, 218, 775. 38

The amount accruing to the Commonwealth is shown below:

From general list corporations:	
Net amount assessed	\$4, 184, 240. 72
Amount due cities and towns.....	2, 563, 442. 07
	1, 620, 798. 71
Amount due to cities and towns on account of tax on street-railway companies	569, 069. 29
Balance accruing to Commonwealth.....	1, 051, 729. 42
Total valuation of capital stock of corporations in 1898.....	625, 595, 020. 00
The valuation of real estate and machinery.....	890, 392, 347. 00
Excess on which a franchise tax is laid	235, 202, 673. 00

STREET RAILWAYS.

In 1898 a change was made in the methods of taxing street railways.

The return to the tax commission must show, in addition to the statements formerly required, the total length of track operated, the amount of capital stock of the company, and of the dividends paid thereon during the previous year and during each year from its organization. Companies which have, from the commencement of their operation, paid dividends of 6 per cent on their capital stock, and during the year preceding the statement paid dividends exceeding in the aggregate 8 per cent upon their capital stock, are required to pay to the treasurer for every such year, in addition to the general corporate franchise tax, a tax equal to such excess of dividends.

The portion of the tax not retained by the State is to be apportioned among the several cities and towns in proportion to length of track operated in such cities and towns, instead of being distributed according to ownership of shares.

Roads are also required to file with the boards of assessors in the several cities and towns through which they run annual statements of total length of track and gross receipts, upon which gross receipts the assessors assess an excise tax

equal to such proportion of the following percentage of gross receipts as the length of track operated in any city or town bears to the total length of track operated in public ways, viz:

In case gross receipts are \$4,000 or less per mile, 1 per cent of the total annual gross receipts; in case of gross receipts exceeding \$4,000 per mile and less than \$7,000, 2 per cent; in case of gross receipts exceeding \$7,000 and under \$14,000 per mile, 2½ per cent; in case of gross receipts exceeding \$14,000 and less than \$31,000 per mile, 2½ per cent; in cases where gross receipts exceed \$31,000 and are less than \$28,000 per mile, 2½ per cent; and in cases where gross receipts exceed \$28,000 per mile, 3 per cent. This excise tax is in addition to the other taxes provided by law.

BANKS.

The method of taxing banks is in general similar to that of the general corporation tax described, differing somewhat in detail to secure conformity to the provisions of the Federal laws governing national banks.

The taxes assessed are paid by the banks directly, shareholders having no direct connection with assessment or payment, and the taxes collected from banks are apportioned among the cities and towns according to residence of owners of shares within the State, the remainder being retained in the State treasury, as in the case of general corporations.

The shares are taxed to their owners by the local assessors at their fair cash value, less the value of the real estate owned by the bank, which is assessed directly to the bank in like manner as other real property is assessed to the owners.

The taxes so assessed upon shares are paid by the bank on behalf of shareholders at the local rate for State, county, and town taxes, and the shareholders are then relieved from further taxation upon their shares.

The city or town in which the bank is located is entitled to so much of the tax as is represented by local real estate owned by the bank and by shares which its inhabitants own; other towns or cities are entitled to such proportion of the tax as the ownership of shares by their inhabitants represents, while such part of the tax as is represented by shares owned outside of the State accrues to the State treasury.

Yield of the bank tax in 1896.

Whole amount of tax on shares	\$1,543,535.11
Retained by towns where bank is located	\$547,238.87
Certified to other cities and towns on account of shares owned	368,718.64
Due to institutions, societies, etc	206,718.64
Accruing to the State treasury	421,051.64
Total	1,543,535.11

Taxation on bank shares, 1898.

Whole amount of tax on bank shares	\$1,509,936.75
Of which there was retained by towns on account of shares owned by residents	\$547,799.92
Amount paid into State treasury	976,136.83
	1,509,936.75

Of this amount \$412,890.88 accrued to the Commonwealth.

SAVINGS BANKS.

Savings banks and institutions for savings form a class by themselves. They are regarded as in the nature of trust institutions for the benefit of depositors and are not taxable under the general corporation or bank law.

They pay to the State a special tax of one-half of 1 per cent annually on the amount of their deposits, subject to certain deductions.

They are required to make semiannual returns to the State treasurer, showing the amount of deposits on the first days of May and November, and the average amount of deposits for the six months next preceding each of those days. From these returns the tax commissioner assesses the tax upon the various banks in proportion to the average amounts of their deposits during each period at the rate fixed by law, one-fourth per cent for each six months, or one-half per cent per year. Certain deductions, however, are made for the amounts invested in real estate used for banking purposes taxed locally, in loans secured by mortgage on taxable real estate, and in shares of banks taxed by the State.

The proceeds of the savings-bank tax accrue entirely to the State treasury.

Yield of the savings-bank tax.

1896.....	\$1,291,256.47
1898.....	1,835,750.55

The valuation for the latter year was \$276,150,455.

TRUST COMPANIES.

These companies form a separate class for taxation; they are taxed on their capital stock under the general corporation tax law like other corporations, and are also subject to a separate tax on trust funds and deposits.

The tax on trust funds and deposits is levied in two distinct parts, upon personal property held in trust and upon deposits. Annual sworn returns to the tax commissioner are required of all personal property held on the first day of May, which is taxable on the aggregate amount owned by residents outside the State.

The tax commissioner, guided by the return, makes a valuation of the property, and assesses a tax upon the full value of the property at the rate determined under the general tax law, being the average rate of taxation, so called, in the State.

Annual sworn returns are also required of sums deposited, with residences of depositors and aggregate amounts held for depositors in each place. Upon the total value of these deposits the tax commissioner assesses a tax of three-quarters of the average rate of taxation of the State. These taxes are paid directly to the State treasurer, and distributed among the cities and towns of the State, so far as the funds and deposits are owned by residents. Taxes assessed on property held for persons outside the State accrue to the State treasury.

Valuation and taxation of personal estate.	1896.	1898.
Valuation of personal estate	\$1,289,059	\$1,395,421
Tax on personal estate	19,398	21,866

INSURANCE COMPANIES.

Insurance companies organized under the laws of Massachusetts, having capital stock, are taxable on the market value of shares under the general corporation tax law.

Separate taxes are, however, imposed on certain kinds of insurance companies. Mutual life insurance companies organized under the laws of the State, and foreign life insurance companies of all kinds doing business in the State, are subject to a tax of one-fourth of 1 per cent on the net value of all policies in force held by residents of the State in the year preceding the assessment.

Mutual, fire, marine, and other insurance companies organized under the laws of the State, except life companies and those taxed under the general corporation tax, are required to pay a tax of 1 per cent on their receipts for all premiums and assessments, subject to deduction for premiums received in some other State and taxed in similar manner there. Companies of a similar character, organized under the laws of other States or countries, pay a tax of 2 per cent on all premiums received for the insurance of property or received by agents within the State.

All taxes on insurance companies, except on those taxed on their corporate franchise, pass to the treasury of the State without distribution.

Insurance tax, 1896 and 1898.

Subjects of taxation.	Values.	Tax.
Tax on life policies, 1896.....	\$68,499,367	\$171,248
Tax on premiums, 1896	16,066,540	268,366
Total to the State		439,604
Life insurance, 1896	77,209,204	193,023
Insurance premiums, 1896	16,855,384	285,178
Total.....		478,201

INHERITANCE TAX.

A State tax is levied on all property passing to collateral heirs in any manner, after the death of the grantor, except that passing to or for the use of charitable, educational, or religious institutions, the property of which is exempt by law from taxation, and except in cases where the estate does not exceed \$10,000 after the payment of all debts, and excepting legacies or distributive shares of \$500 or less. Property passing to direct descendants and near relatives of deceased persons is not subject to this tax. These taxes pass to the State treasury. The rate is 5 per cent on the market value of all property thus passing.

Amount of collateral inheritance tax.

1894.....	\$239,368.55
1895.....	419,427.11
1896.....	275,578.24
1898.....	563,672.00

LIQUOR LICENSE TAX.

Taxes are imposed upon the privilege of selling liquors within the State, divided into several different classes with graded rates, and apportioned between the city or town in which the license is granted and the State, the former receiving three-fourths and the latter one-fourth of the tax.

The amount of this tax to the Commonwealth, being one-fourth of the whole, was:

1895.....	\$682,099.86
1896.....	669,602.17
1898.....	769,834.25

The principal sources of taxation for the Commonwealth of Massachusetts may be summarized as follows:

1. General property tax, 1896	\$1,745,840
2. Corporation taxes:	
(a) General corporation tax	1,075,080
(b) Bank stock tax	417,898
(c) Savings bank tax	1,291,286
(d) Insurance premium tax	267,667
(e) Excise tax on life insurance companies	171,248
(f) Foreign railroad tax	26,749
(g) Mining companies tax	4,902
(h) Other taxes on corporations	63,011
3. Collateral inheritance tax	275,578
4. License fees:	
(a) Liquor licenses	669,602
(b) Peddlers' licenses	22,902
(c) Other licenses	44,576
	6,075,284

Valuation and taxation of real and personal property in Massachusetts, 1896 and 1898.

1896.

Items.	Valuation of real estate.	Valuation of personal estate.	Tax on real estate.	Tax on personal estate.
Real estate by assessors	\$2,040,200,644		\$30,120,730	
Personal estate by assessors		\$582,319,634		\$8,898,980
Tax on polls by assessors				1,484,629
Corporate taxable excess		252,252,032		3,809,004
Nonresident bank stock		71,714,838		996,296
Savings-bank deposits taxable		248,083,232		1,240,439
Massachusetts Hospital Life Insurance Co.		10,163,425		50,317
Life-insurance values		68,499,367		171,248
Insurance premiums		16,066,540		272,621
Foreign railways		63,498,000		26,749
Trust companies' deposits		1,389,059		19,398
Mining companies		26,267,619		6,211
Gas and electric light companies' tax				16,218
Railroad commissioners' tax, including inquest				31,212
Inspector of gas meters tax				4,149
Liquor licenses				2,678,408
Collateral legacies and successions tax				275,722
Care and custody of deposits				1,800
Total	2,040,200,644	1,330,153,356	30,120,730	19,430,102

Total assessments, \$49,550,882.

Valuation and taxation of real and personal property in Massachusetts, 1896 and 1898—Continued.

1898.

Items.	Valuation of real estate.	Valuation of personal estate.	Tax on real estate.	Tax on personal estate.
Real estate by assessors	\$2, 182, 596, 661		\$33, 594, 643	
Personal estate by assessors		\$581, 646, 183		\$3, 719, 105
Tax on polls by assessors				1, 478, 630
Corporate taxable excess		265, 288, 808		4, 162, 375
Nonresident bank stock		66, 742, 866		976, 136
Savings-bank deposits taxable		255, 701, 663		1, 278, 506
Massachusetts Hospital Life Insurance Co.		11, 448, 792		57, 243
Life-insurance values		77, 209, 204		193, 023
Insurance premiums		16, 865, 384		285, 178
Foreign railways		53, 498, 000		26, 749
Trust companies' deposits		1, 395, 421		21, 866
Mining companies		41, 632, 860		7, 786
Gas and electric light companies' tax				13, 215
Railroad commissioners' tax, including in- quests				32, 252
Inspector of gas meters tax				4, 101
Liquor licenses				3, 079, 337
Collateral legacies and successions tax				563, 672
Care and custody of deposits				1, 800
Tax for special commission on street rail- ways				6, 502
Total	2, 182, 596, 661	1, 371, 419, 131	33, 594, 643	20, 907, 474

Total assessments, \$64,502,117.

NATURE OF PERSONAL PROPERTY TAXED.

The total amount of personal property assessed is easily obtainable from the official publications of the State, but information as to the different kinds of personalty taxed is not obtainable from those sources, and is obtained with difficulty. By particular inquiry the tax commission of 1897 acquired much valuable information upon this subject.

The total assessed property in the State in 1896 was \$2,622,520,278, of which \$2,040,200,644 was real estate, and but \$582,319,634 personal property, the proportion being, roughly speaking, 4 to 1.

There is a remarkable variation in the ratio of personalty to the total assessed valuation among the different cities and towns and in the State at large. Manufacturing cities, from the valuation of machinery, show a large percentage of personalty; other cities a smaller percentage, according to the information obtained by the commission. In 4 towns the personalty assessed is less than 5 per cent of the total valuation; in a few more it is less than 10 per cent, and in a considerable number less than 15 per cent of the total, while in 16 towns the personal property assessed by local assessors is 40 per cent of the total valuation.

An attempt was also made by the commission referred to to ascertain the various kinds of personalty assessed, dividing it into 2 classes, tangible and intangible, and classifying each.

In the cities (except Boston and Somerville), the assessed personalty was classified as follows in 1896:

Tangible personalty:

Stock in trade	\$35, 964, 749
Machinery	77, 838, 741
Furniture and carriages	6, 561, 177
Live stock	6, 357, 015
Ships and vessels	1, 872, 658
Other tangible property	1, 669, 197

Total

Intangible personalty:

Money on hand and at interest	2, 070, 766
Securities and investments	22, 810, 714
Income	3, 880, 220
Other intangible personalty	86, 258, 481

Total

Total personal property

In these cities the tangible personal property was in the ratio of 2 to 1 of the intangible.

The classification of tangible personalty is somewhat accurate and reliable, but that of intangible property evidently signifies nothing. Personalty of this character is assessed almost entirely by estimate or "doomage" in a lump sum and designated as "cash assets," "securities," "investments," etc., the separation of various kinds being nominal. In Boston and Somerville no accurate data were obtainable. From estimate and inference the commission concludes that the excess of tangible assessed property over intangible is less marked in those cities than in other cities of the State.

In the towns of the State, with the exception of a few where the conditions are peculiar in that respect, the proportion of tangible to intangible personalty is also about 2 to 1. In the few exceptional towns referred to, where intangible personalty exceeds the tangible in the familiar ratio of 16 to 1.

In practice the assessment of the various kinds of tangible personalty, such as live stock, vessels, stock in trade, and machinery, is made by estimate rather than return, upon the discretion and judgment of the local assessors and upon varying standards and methods, resulting in the usual inequality.

In the country there is a more general and uniform assessment and valuation of this class of property than in the towns and cities, and it is fairly satisfactory in its working. Indeed, the commission says all authorities agreed that the general property tax, which was first put into effect in the country under industrial conditions very similar to those which are now found in a farming town, works well under these conditions, but becomes more and more difficult of satisfactory application as property becomes larger in quantity and more complex in character; hence in the larger towns and cities of diversified industries in actual practice the taxation of these forms of personalty is difficult, and varies as between different places, the difficulties and divergences being part of the general difficulty of applying any general property tax.

The taxation of stock in trade in towns and cities by estimate, with the opportunity for correction by formal sworn return and informal conference, while entirely unreliable, diversified, and incomplete, is regarded by the commission as working better and resulting in less injustice than would a system of rigidly enforced returns.

No deduction from the assessed stock in trade is allowed for debts, which is commended as avoiding fraud and evasion. It is related as a striking fact that in the investigations of commissions and evidence brought before committees of the general court no complaint is made by business men as to the working of this part of the tax system. Whether complaint is made by other classes, who have different kinds of property subject to taxation, is not stated.

The taxation of machinery is made in the same manner and with the same general results. Because of the dependence of Massachusetts upon its manufacturing industries, the doubtful value of machinery, its rapid depreciation, sudden changes in value from improvements and new inventions, the commission concludes that it would be advisable to exempt it from taxation entirely, and recommends that it be done as soon as convenient substitutes can be found for the revenue now derived therefrom.

It is clear that tangible personalty upon the whole is but partially and unequally taxed. The taxation of intangible personal property, such as notes, stocks, bonds etc., in which the State is particularly rich, is most unsatisfactory.

While the law permits sworn statements of taxables, and a limited number are made, in practice these taxes are usually assessed by estimates or "doomage." Sworn statements when made are often false, and perjury is committed for the sake of evading or reducing taxation. Hence in a complicated society, with a mass of varied investments ramifying in all directions, the taxation of intangible personalty is in a high degree uncertain, irregular, and unsatisfactory. It rests mainly upon guesswork, and is demoralizing alike to taxpayers and tax officials. The commission says that the fact that the great bulk of intangible property taxable by law is not reached is admitted on all hands, and that ineffectual as the taxation of securities is, its weight is nevertheless felt both as an actual burden and as an imminent possibility; that the taxation of personal property in the form of securities and investments is a failure, incomplete and uncertain, not proportional to means as between individuals, and grossly unequal in its effects in different parts of the State; that the experience of Massachusetts in this regard is the same as that of the other States of the Union; that everywhere, without exception, the testimony is that this part of the system of the general property tax is unequal, unsuccessful, often demoralizing to tax officials, always irritating to taxpayers.

The experience of Massachusetts in this respect is regarded as the more striking because there the difficulty does not lie mainly in the administration of the tax laws, because the assessors are usually honest, competent, and zealous. While in other States there are grave abuses and corrupt laxity, in this State the standard of public duty continues to be high, the assessors intelligent and experienced, and the cause of failure is not in official dereliction, but lies in the system itself.

It is maintained on one hand that the difficulty lies in the method of valuation and assessment of such property by local assessors, and that the remedy is to be found in more stringent assessment by State officials at some uniform rate; and on the other hand, that the whole system is bad, irrespective of the complication arising from local assessment; that the taxation of securities involves double taxation, is unjust, and in any case impossible of satisfactory execution by local or State officials.

The commission, in discussing the taxation of foreign securities in the hands of citizens of the Commonwealth, expresses the opinion that the method of taxing such securities as property within the State is taxed is bad in principle as well as ineffective in practice, and that while such citizens should be required to contribute in some way to the public burdens—not with respect to the property represented by such securities, but with respect to the income therefrom—they should not be taxed on the securities in the same manner as if they held property in the State. It is pointed out that the attempt to enforce such taxation by the rigorous and drastic measures frequently proposed would not only be ineffectual upon such an elusive form of property, but to the extent accomplished would be double taxation and unjust; that with the rate of interest upon such securities not exceeding 4½ per cent, and the average rate of local taxation 1½ per cent, the taxation amounts to one-third of the entire income, while no civilized country in ordinary times has ever imposed with success an income tax of more than 8, or at most 5, per cent; that such a taxation results in general evasion and perjury, and that the taxation of such securities by rigid sworn returns is most demoralizing and ineffective; that the method of local assessment is not the root of the evil, but that the fundamental cause is the futile endeavor to tax securities—mere evidences of ownership of property—by the same methods and at the same rate as tangible, visible property.

RECOMMENDATIONS OF THE TAX COMMISSION.

The commission therefore proposes a radical change in existing methods, and recommends that all securities and evidences of debt representing ownership or interest in property outside the State be not subject to the general tax on property. This, they say, would do away with all questions of double taxation and administrative difficulties and make the legislation of the State with respect to such securities consistent with itself.

With this recommendation the commission, recognizing the injustice and inequality of exempting the holders of securities and obligations from taxation and the necessity of requiring some contribution to the taxes of the State in some reasonable proportion to means, is impelled to the consideration of substitutes for such tax.

Considering a tax upon income as such substitute, while recognizing such a tax as in principle the most equitable that could be devised, and in practical working preferable to the present system, the difficulty under present conditions of administering such a tax with certainty and equality of treatment as between different taxpayers is thought to be too great to warrant the recommendation of its adoption. The commission fails, however, to present any forcible or logical reasons or argument to justify the assumption that such a tax levied by State authorities by reasonable methods would be impractical in its results, or the apprehension expressed that it would result in evasion and concealment to so great an extent as to render it ineffectual and deservedly unpopular.

The commission seems to magnify the objection to requiring from the holder of such securities a statement or return for taxation, such as would not appear objectionable in business as a basis for credit, and to be oversolicitous of the feelings of those whose sensitiveness is principally aroused by the desire to dodge taxation.

Animated by this objection, which is regarded with undue seriousness, the commission seeks for a substitute for the taxation of such securities and obligations which would obviate the necessity of rigorous methods for discovery of property by returns.

Referring to the Pennsylvania method—designated as a compromise policy, in its effect not far from a State income tax on securities—of taxing such securities at the uniform rate of 4 mills on each dollar of the value, or \$4 on each \$1,000 of

value, the commission concludes that its practical working in that State is not satisfactory, and expresses the opinion that this method offers no advantages over that of a State income tax.

The Connecticut method of taxing such securities—subjecting them to a uniform State tax of \$3 per \$1,000 of value by registration—is also considered, but while some advantages are conceded, it is not regarded as satisfactory in its operation or results.

The commission, in its search for methods of taxation of such property owners which would relieve them from a declaration and yield more certain and uniform contributions of revenue, recommends two modes as feasible and avoiding the objections referred to; namely, the extension of the existing inheritance tax to yield a substantial increase in revenue, and a tax on occupants of habitations, or a tax on presumed or estimated income based on the expenditure of the taxpayer for dwelling-house purposes. It proposes a graded tax on all persons occupying dwellings of an annual rental value exceeding \$400, and, in view of this tax, the abolition of the present tax on incomes "from professions, trade, or employment." These further innovations upon the "simple system of the general property tax" are proposed for the commendable purpose of securing still greater variety in the methods of taxation, to correspond with the growing complexity in the ownership and distribution of wealth. It is suggested that if the changes recommended were made and followed in other States as well, they would avoid double taxation and result for the country as a whole in a sound and consistent system of local and State taxation.

The commission finally recommends the abolition of existing taxes on intangible personalty, such as stocks, bonds, and loans on mortgages, the inheritance and habitation taxes being relied upon to yield an equivalent revenue.

MINORITY REPORT.

One member of the commission presented an elaborate and characteristic minority report, vigorously opposing most of the recommendations of the majority.

The difference in the positions of the respective branches of the commission upon fundamental propositions apparently arises from the fact that they occupy different view points as to the nature of the general property tax system as applied to the industrial and property conditions existing in the Commonwealth.

Both are animated by the same commendable purpose—the attainment of the greatest possible degree of justice and equality in the practical application of a system of taxation.

Both evidently agree upon the essential principles of taxation, but the majority is apparently moved by a sense of the inadequacy of existing methods alone to provide a practical operation of those principles, while the minority evidently has abounding faith in the efficiency of the system if properly supplemented and enforced by legislation and correct administration.

The majority recognizes the necessity of adopting other methods in conjunction with those existing for the assessment and taxation of certain kinds of corporate and intangible property, which it assumes can not be properly reached through existing methods alone, while the minority affirms the efficiency of the present system through proper administration to reach for taxation all kinds of property.

The majority is apparently impelled to the conclusion that the principle of self-assessment of taxables through verified property statements, supplemented by coercive measures for its enforcement, and the self-assessment of townships and wards by the competitive valuation method, have proven utter failures in the practical experience of States, while the minority is impressed with the conviction that the success of these methods is a question of proper administration.

Brief reference to some of the points in his report will suffice to indicate his views and his trend of thought upon the subject of taxation; and inasmuch as he voices the sentiment of a large class of people active in the advocacy of their opinions, such reference may not be out of place in this report.

His conviction that every taxable should be compelled to contribute to the support of government and society according to his ability, and that ability to contribute is justly measured by the value of his property, in whatever form it exists, is unyielding. He exhibits no patience, leniency, or toleration towards the "tax-dodging constituency," and his policy is that of compulsory equality of taxation by uniform assessment and taxation of all kinds of property through coercive measures.

The way to reduce the tax rate without increasing the tax valuation, he says, is simply to secure the payment of the tax upon property that escapes. He vigorously protests that the present tendency, as shown in the demands for exemption from taxation of those who have the most of the world's wealth, rests upon the theory that the prosperity of the State is in direct proportion to the exalted privileges of the few. He inveighs against that tendency and urges that "Massachusetts should stand as the conservator of her ancient rights and privileges, and should insist upon a system of equal taxation, exempting only the poor, the unfortunate, the aged, and such institutions as shall best advance the interests of the whole people."

He favors the taxation of securities of all kinds, contending that they are not merely evidences of property, but actual property to all intents and purposes, subject to transfer and sale, and that the taxation of such property is not, in the proper sense of the term, "double taxation." He opposes the abolition of this tax and favors its enforcement by drastic penal measures, bitterly condemning evasion and tax dodging on the part of citizens, and characterizes one who by willful concealment evades his tax as "a lawbreaker with malice prepense."

"The man who refused to pay his poll tax was incarcerated for his refusal, and the common people, unlearned in tax theories, might well ask: Why should not the millionaire who evades the tax be liable to as severe a penalty?"

He recommends that the "vast sums escaping taxation through imposition upon the generous provisions of the State" by deposits in savings banks favored in taxation should be reached, and that amounts on deposit exceeding \$500 be taxed above the present reduced rate.

He maintains in sweeping generalities that intangible personalty should be taxed as all other property, and that a system should be adopted to prevent its escape, to the end that the State might enjoy a rate so low that one class would not be burdened with the weight of the taxes of others.

He agrees with his associates that "the great bulk of intangible properties do escape taxation," and has much to say about the "privileged classes" who own such property and the power of the State to "compel obedience to the law."

He commends the sound sense of the Maine commission of 1899: "We have no sympathy with the idea that because some men will defraud the revenue, because they will conceal property, commit perjury, and resort to all conceivable trickery to prevent taxation, therefore the whole classes of property which they would thus hide from the assessor should be exempted by law."

He gives little consideration to the substitution of other methods for the taxation of such persons and property, but insists that they shall be actually taxed through present methods.

He proceeds to show by statistics that the personal property of the city and State subject to taxation is at least twice the value of the real estate, and that on the basis of 2,040 millions of realty assessed in 1896, the personalty should have been 4,080 millions, or 2,760 millions more than was actually taxed.

On a total taxation of \$38,519,570 of that year the added assessment of even 2,000 millions of intangible personalty would have reduced the rate to about \$8.50 per \$1,000.

He attributes such escape of property from taxation to the laxity of the laws and not to the system in force, and favors compulsory statements as the remedy.

He favors the taxation of real-estate mortgages and denies that the exemption of the mortgage in the hands of the holder would relieve the owner of the land by a corresponding diminution of interest, as the rate of interest depends upon many other things than the rate of taxation.

He undertakes to prove by statistics that mortgage rates of interest show no greater decline where these securities are relieved from taxation, and that mortgage exemption causes no appreciable reduction of interest charges to the borrower.

He does not favor State assessment, but recommends "no new departure from the ancient policy of the State 'to tax all men according to the measures of their ability,' but rather to complete the system now in operation by such amendments as shall adapt our policy to the more complicated conditions of our time."

REPORT OF THE LEGISLATIVE COMMITTEE.

A special committee on taxation, consisting of 4 members of the senate and 11 members of the house of the Massachusetts legislature, was appointed, to which were referred the recommendations of both the majority and minority reports of the special commission above set forth, and various bills submitted for carrying out such recommendations.

The recommendations of the majority were briefly as follows:

1. An inheritance tax upon both realty and personalty of 5 per cent, exempting estates not exceeding \$10,000, and abating \$5,000 on estates between \$10,000 and \$35,000, the revenue to be divided between the State treasury and local districts.
2. A tax on occupiers in proportion to house rentals, only the excess over \$400 rental being taxable.
3. Abolition of the present taxes on intangible personalty, such as stocks, bonds, loans on mortgages, and incomes, the tax under 1 and 2 being relied on to yield at least as much as is now secured from this source.
4. Assumption by the State treasury of county expenses.
5. Appropriation by the State of the revenue from taxes on corporate excess now distributed among the several cities and towns.

The minority report protested against the removal of the tax on intangible property as putting all the burdens of taxation on the poor and active and exempting the rich, and as being unconstitutional class legislation; condemned the house-rental tax, and opposed the redistribution of county expenses. The positive recommendations were the taxation of intangible personal property like all other property, and the adoption of a rigid system to prevent its escape. In detail, it advocated the increased taxation of savings banks deposits in excess of \$1,000, the taxation of mortgages, and incidentally the prohibition of covenants by borrowers to assume and pay taxes on mortgages; a tax on personal property at a uniform rate throughout the State, to be determined by the average rate of the previous year, the personal tax to be doubled when sworn returns are not filed, such tax to be laid by the tax commissioner, assisted by a corps of State assessors, with power to control local assessments, who, when not otherwise employed, are to seek for the discovery of concealed personal property and the detection and punishment of those making false returns. In view of the experience of enlightened foreign nations, a graduated inheritance tax was favored for additional revenue, but not as a means of exempting intangible property.

The report of the special tax commission was given most careful consideration, and the committee held many hearings and heard a large number of witnesses both for and against the proposed recommendations. The committee says in its report that there was no evidence from the attendance upon the hearings of any widespread feeling of dissatisfaction upon the part of the taxpayers with the existing system.

The case of the petitioners, so called, or those who desired a change in the existing laws and approval of the recommendations in the majority report of the tax commission, was ably conducted by the counsel of the Anti-Double Taxation League, having a membership of 1,000 citizens of Massachusetts especially interested in the abolition of the present taxes on intangible personalty proposed by the majority. The testimony came chiefly from those who had made a specialty of the subject and had very positive views upon the proposed changes, and the arguments made in favor of such changes displayed great learning and ability. Among the numerous witnesses representing various classes of property were representatives of mining companies having large sums of money deposited in local banks and whose offices were in Boston, although many of the companies were organized in other States, who testified that if their stockholders were reached and taxed it would be necessary for them to leave the State; that the royalties and franchise taxes in other States were considerable and the taxation of stock there would be double taxation; that the State could compel them to furnish a list of shareholders (a bill for that purpose having been introduced), and if such a law were passed they would move their offices from the State.

The remonstrants against the changes proposed by the majority report were made up largely of those who had studied the subject and had very decided opinions upon it, of assessors, who were practically a unit against them, representatives of farming interests, and mayors and solicitors of several cities of the Commonwealth; and able and learned arguments were also made against the proposed changes.

The committee also gave careful consideration to the views and opinions of economists and writers upon the subject of taxation, and sought light upon the difficult subject in every direction by exhaustive study and investigation.

A most notable feature of the hearings was the wide divergence in the opinions and views of witnesses and counsel upon the subject of taxation and the positiveness and tenacity with which such diametrically opposite views were advocated.

The nature and sources of the testimony given, coming principally from students, theorists, and assessors, comparatively little being heard from taxpayers generally, suggested to the committee the probability that the truth might lie between the extremes presented chiefly on theoretical grounds, and led to a

most careful examination of the existing system as it affects the great mass of taxpayers.

The committee says that looking at the situation broadly, and considering taxation as the art of raising necessary public revenue fairly and in a manner not only proportional but reasonable, rather than as the exact science of finding every bit of property and extracting from it the largest possible tax by strict logical rules, it may be questioned whether the strictures upon the present system, from theorists upon the one side and assessors on the other, are as deserved as might at first appear. A considerable revenue is collected, the committee says, from the tax on intangible property, and no general complaint was made by those who pay taxes out of proportion to what others pay. The conclusion was that the undeniable defects in the present system ought not to be needlessly exaggerated, and that the Commonwealth should be very slow to overturn its methods of taxation on no better ground than that they are not ideal or perfect.

In a conservative and practical spirit the features of the various changes proposed were considered and discussed from the standpoint of practical successful legislation, in the light of the circumstances which exist among the people and the industrial and political conditions existing in the Commonwealth.

Considering the views of the extreme advocates of opposing views among witnesses the committee says: "When the practical assessor is consulted for what is, and the theoretical economist for what ought to be, it is learned from the economist that what the assessor wants ought not to be, and from the assessor that what the economist wants already exists."

The committee, believing that the majority report of the special tax commission should be accepted or rejected as a whole, refused to recommend its adoption as a substitute for the existing system of taxation. The abolition of the present tax on intangible personalty could not be recommended unless some less objectionable substitute were provided which would yield the required revenue.

The proposed habitation tax was regarded as open to many objections, as a sumptuary law that would fall especially upon the most deserving class in the community, discourage marriage and residence in Massachusetts, and above all place an excessive burden upon the home, the creation and maintenance of which are of the highest importance to the well-being of the community. It would bear disproportionately upon those with moderate means, and its constitutionality was questionable.

The inheritance tax of 5 per cent on both realty and personalty was regarded as objectionable, and an inheritance tax on personalty alone at a rate which would not be burdensome would not afford an adequate substitute for the loss of revenue which would result from the exemption of intangible personalty.

The committee was unable to report favorably upon any of the recommendations proposed in the minority report for the stricter enforcement of existing laws, and did not approve of the act providing for the State assessment of personalty. It was also opposed to the graduated inheritance tax.

In regard to the petition of the Anti-Double Taxation League, providing for the exemption from taxation in the Commonwealth of personal property situated and taxed without, and shares of certain corporations organized under the laws of other States, but owned in Massachusetts, the committee said that in so far as it would exempt the taxation of personal property, such as stock in trade, cattle, and property of like nature already taxed in other States, it was not open to serious objection, but it was thought that the evil was not of sufficient magnitude to justify legislation upon the subject, in view of the complications which would follow. To the proposed exemption of shares of foreign corporations owned within the State serious objections were found.

In announcing its conclusions that it could not recommend any legislation introducing fundamental changes in the present law or any radical changes in the administration of the law as it existed, the committee recognized the disappointment likely to be felt by both sides, and stated that the committee did not feel called upon to originate any legislation, but concerned itself with the consideration of the commission's report, with the result stated; that changes in laws so vital to the well-being of the community as those of taxation must be made only after the most careful, painstaking, and deliberate investigation; that such laws are the result of extended legislation, and the system one of growth which has more or less adequately kept pace with changes in industrial conditions; that the members of the system are so articulated that the disturbance of one more or less affects all the States; that to formulate a tax system for a new community is one thing, to revolutionize an existing system quite another; and that legislation in this direction should come only in response to a pressing and widespread demand for it. Admitting all alleged defects in the present system, the prudent legislator

must be confident that changes proposed will improve conditions before he can recommend them, and such changes must come to meet the wishes of the average opinion. They can not be hastened to conform to the views of reformers who always ride on the crest of the wave of progress, nor can they be long retarded to avoid offending those who would never change existing conditions. Legislation on the subject can not be made in advance of public opinion, and as a committee they were not satisfied that this mandate had yet been expressed in favor of radical changes.

The committee said the fact that no radical changes were recommended should not discourage those who believe that existing conditions can be improved, and invited continued agitation on the subject as the only way that intelligent public opinion can be created, in response to which changes in the law are sure to be made.

The reports and proposed changes in the taxation laws were also carefully considered and discussed in the assembly, and no material changes in the taxation system have yet been made. Thus the laborious work of the special tax commission appointed in recognition of "the widespread dissatisfaction" with existing laws, composed of men of recognized ability and standing, resulting in the presentation of one of the ablest and most comprehensive reports ever made by a tax commission, and one of the most valuable contributions to the literature of taxation, has thus been unproductive of direct results in legislation.

These reports of the special tax commission and of the joint legislative committee form a most valuable study, and constitute one of the most interesting and instructive chapters in the modern literature of taxation, and an important object lesson in the obstacles to practical reform in long-established systems.

Therein is clearly and forcibly illustrated the wide gulf between conception and attainment; between scientific theories of taxation and the action of practical legislators upon the subject, and the fact that practical reform in taxation is attainable only in response to enlightened aggressive public sentiment along practical lines and under the direction of men in whom are combined ability and learning in the theories of correct taxation; with a practical knowledge and experience in business and political affairs.

The practical value of this chapter in the able and voluminous contributions of the Commonwealth of Massachusetts to the literature of taxation induced us to give it so considerable space in this report.

CONNECTICUT.

The distinguishing feature of the system of taxation existing in this State is the entire separation of State and local revenues, real estate and personal property in general being assessed and taxed locally for local purposes, and all State revenues being raised by special taxes, mostly on corporations, and not by direct property tax.

There are no constitutional limitations or provisions as to the power of taxation, the authority of the legislature in respect to matters of taxation apparently being supreme.

For the reason that there is no direct property tax for State purposes, the revenues of the State being raised largely from special taxes on corporations, little need be said for our purpose upon the system of local taxation.

PROPERTY TAX.

In respect to local taxation, the general property tax prevails.

The general plan of taxing property was adopted in 1819. Prior to that time Connecticut from her earliest history had pursued the plan of taxing incomes rather than property. Those engaged in trades or professions were assessed on an estimate of their annual incomes.

Real estate was rated for taxation not at its capital value, but in proportion to its estimated annual income.

Lands, as well as houses and buildings, were listed at fixed rates by statutes thought to represent, not values, but the average income they would produce, thus placing them beyond the control of assessors and preventing opportunity for evasion.

Although the system was to a great extent changed in 1819 to one of assessment on property valuation, the old theory of taxing property in proportion to income or productive capacity was partly kept up by listing real estate at 8 per cent and personality at a larger proportion, frequently 6 per cent, of its true value.

In 1850 this distinction between real and personal property was abolished and all taxable property was made ratable at 8 per cent of its value.

This preserved the form only of an income tax, and in 1860 was abandoned and replaced by legislative provision for listing all property at its full value.

Prior to 1891 the revenues required by the State were in considerable part raised by the same methods employed for raising local taxes, and mingled with them in the direct tax upon local property. The result was the usual growth of the evils of unequal assessment and escape of property from the tax rolls.

While the statutes require the assessment of all taxable property at the fair market value thereof, and not at its value at a forced or auction sale, the tax commission in its report of 1887 says that few, if any, town assessors value real estate at what they think it is fairly worth, but, on the contrary, first make appraisal of its actual value and then put it in the list at a certain proportion thereof, varying from 83 to 75 per cent; and that similar reductions are made in valuing personal property, though with less uniformity and more injustice.

This abuse was attributed to the payment by each town of a State tax of a fixed percentage of its grand list.

Although no State tax is now levied directly upon property, the habitual undervaluation of property, and failure to assess at all a large proportion of personality, still constitutes the most prominent evil in the system of local taxation, which operates with special injustice to the small property owner in that State, according to the twelfth annual report of the bureau of labor statistics in 1896.

The bureau, in the report referred to, reports an investigation based largely upon statements of local assessors themselves, showing valuations varying from 50 per cent to 100 per cent of full value, the average percentage in the entire State being 69.6, which, from the sources of information, would obviously be sufficiently high.

From this report, very few of the assessors, in their own statement even, pretend to assess full value, or 100 per cent.

While taxable personal property that can be seen and handled is, according to the reports referred to, listed and taxed with great inequality and discrimination, but a small portion of the intangible property, such as notes, bonds, book debts, stocks, mortgages, etc., all of which are taxable, has ever been listed, and this portion is decreasing each year, although such property is rapidly increasing in amount and value in that State.

PROPERTY DIRECTLY TAXABLE.

All real estate not exempt is subject to taxation and assessed by local assessors, and set in the list of the town where situated.

Personal property in this State or elsewhere not specially exempt for the purpose of taxation includes all notes, bonds, and stocks (not issued by the United States), moneys, credits, choses in action, and all vessels, goods, chattels, or effects, or any interest therein; and such property belonging to a resident in the State is required to be set in his list in the town where he resides, at its then actual valuation, except when otherwise provided; but money secured by mortgage on real estate in Connecticut, when there is no agreement that the borrower shall pay the tax, is set in the list and taxed only in the town where said real estate is situated.

These provisions do not include money or property actually invested in merchandising or manufacturing carried on outside of the State, and the list of any person need not include any property situated in another State when it can be made satisfactorily to appear to the assessors that it is fully assessed and taxed in such State to the same extent as other like property owned by its citizens; but this does not apply to moneys loaned by residents of this State to parties out of the State as money at interest, nor to bonds issued by or loans made to any railroad company located out of the State; when such bonds are owned and loans made by residents of Connecticut, they are subject to taxation as other personality or may come within the tax on investments hereafter referred to.

It has been held by the supreme courts of the State and of the United States that foreign mortgage loans are taxable under present laws against the holder, notwithstanding the borrower may pay the taxes on the mortgaged property where situated. (*Kirtland v. Hotchkiss*, 100 U. S., 491.)

Money loaned at interest with the agreement that the borrower shall pay the taxes thereon, and secured by mortgage of real estate in Connecticut, is exempt from taxation to an amount equal to the assessed value of the land mortgaged, as valued and set in the assessment list of the town where it is situated, but the excess of such loan over such valuation is assessed and taxed in the town where the lender resides, in the same manner as other money at interest. While real-estate mortgages are taxable to the holders as other personality, in practice the holders do not pay any tax, the borrowers paying all that is paid.

The whole property of every corporation in this State whose stock is not by law liable to taxation and which is not required to pay a direct tax to the State in lieu of other taxes, and whose property is not by law expressly exempt from taxation, is liable to taxation in the same manner as the property of individuals.

Real estate owned by a corporation not required for the transaction of its appropriate business, unless specially exempted by law, is taxable.

The real estate of any such corporation is assessed in the town where it is situated and the personal estate where it has its principal place of business, and the stockholders of any corporation the whole property of which is assessed and taxed in its name are exempt from assessment or taxation for their stock therein.

Shares of capital stock of any bank, national banking association, trust, insurance, investment, turnpike, bridge, or plank-road company, owned by a resident of the State are set in his list at their market value in the town where he resides, but so much of the capital of any such company as may be invested in real estate on which it is assessed and pays a tax is deducted from the market value of its stock in its returns to assessors.

The cashiers or secretaries of all corporations whose stock is liable to taxation are required annually to inform the assessors of each town, city, or borough of the names of the stockholders residing therein, the amount of stock held by them and its market value, and a penalty is imposed for failure to comply with this provision.

The cashier of each bank, the treasurer of each savings bank, and the secretary of each corporation is required upon request of assessors of any town, city, or borough to inform them of the name of any person therein owning stock or bonds

held by such corporation as collateral security for any indebtedness or liability and the amount and description thereof.

The owner of any share of the capital stock of any corporation who transfers such share to another with the intent of evading the provisions of the tax law forfeits to the town in which he resides 1 per cent of the value of stock so transferred.

No person is assessable for manufacturing materials or manufactured goods on hand beyond the amount of capital actually invested and surplus earnings, nor at a less sum than the present true value of his real estate and machinery belonging thereto, unless reduced by indebtedness as provided by law.

The interest of any trading, mercantile, manufacturing, or mechanical business is assessed where the business is carried on.

The average amount of goods kept on hand for sale during the previous year is the rule of assessment and taxation; but merchants are liable to assessment for any amount due them from responsible persons beyond their liabilities.

A resident of any town indebted to another resident of the State in such manner that the debt is liable to be assessed to the creditor may have the amount deducted from his list, and it is then added to the list of the creditor.

Assessors who may omit any real estate or any amount equivalent to its valuation from the list of any person because of indebtedness secured by mortgage on such real estate, or the board of relief who may reduce such list for such cause, are required to add the amount of such indebtedness to the list of the creditor, if resident in the same town, and if he does not reside in such town, to make a list against him embracing such indebtedness, and notify him in writing of the same.

By special statute the assessors are required to take from all persons giving in tax lists a rigorous sworn statement in form prescribed, but the listing statute is not enforced. Personal lists of taxable property are, in practice, filled in by estimate of assessors, and corrections made by local boards of relief upon application and showing.

The following grand list for 1899 shows the classes of property assessed locally for taxation, and the assessed valuation thereof:

Grand list for 1899, October 1.

	Valuation.
Dwelling houses (with land up to 1½ acres).....	\$255,913,932
Land.....	63,752,308
Mills and investments in manufacturing operations.....	105,101,733
Horses.....	3,496,632
Neat cattle.....	8,190,281
Sheep.....	20,647
Swine and poultry.....	6,271
Farming and mechanic utensils.....	93,126
Clocks, watches, etc.....	859,729
Musical instruments.....	914,450
Household furniture and libraries.....	1,398,963
Carriages, etc.....	1,879,757
Bridges, etc., stocks.....	147,124
Bank insurance, etc., stocks.....	32,707,119
State stocks.....	173,232
Railroad, city, etc., bonds.....	690,820
Stores, merchandise and trade.....	35,428,463
Quarries, fisheries, and mines.....	1,103,804
Investments in vessels, etc.....	1,182,590
Money at interest.....	1,508,231
Money on hand.....	1,103,312
All other taxable property.....	3,821,819
Addition by board of relief (township board).....	3,854,248
Total.....	517,848,086
Deduction by board of relief.....	9,704,337
	508,143,749
Added by board of equalization.....	62,020,000
State valuation.....	570,163,749

STATE REVENUES.

The principal revenues of the State of Connecticut are derived from the following sources:

RAILROADS.

With the exception of certain real estate not used directly in the operation of railroads, no railroad property is assessed for local purposes, but all the property of a railroad is assessed as a unit for State purposes only, at a rate fixed by law.

This method is based on the assumption that the market value of the stock and bonds and floating debt of a railroad company represents the taxable value of all its property, and that the rate fixed by law—1 per cent of such valuation—is practically a fair average as regards taxes paid by other interests, and what it would pay if assessed proportionately in each taxing district through which its line passes. It appears to be generally regarded in the State as a just system.

Each company operating in the State is required to deliver to the controller of the State a verified annual report, showing the number of shares and different classes of its stock and the market value of each share; the dividends paid on each class during the preceding year; the amount of its funded and floating debt, and the market value of any such indebtedness which is below par in value; the number, amount, and market value of any unpaid bonds secured by mortgage; the amount of bonds issued by any town or city in aid of the construction of such road, such bonds being specially exempt by statute; the amount of money on hand; the amount paid for taxes during the previous year; the whole length of the road, and those portions thereof lying without the State.

Every railroad company is required to pay annually on or before November 25 to the State 1 per cent of the valuation of said stock made and corrected by the State board of equalization, and of the par value of funded and floating indebtedness as contained in such statement, or if any of such indebtedness is worth less than par, then of its valuation fixed by said board after deducting from the valuation the amount of any obligations or of their market value, if below par, held in trust for said company, as part of any sinking fund belonging to it, and from the amount required to be paid for taxes the amount of taxes paid on real estate not used for railroad purposes; and the valuation so fixed by said board is declared by law to be the measure of value of such railroad, its rights, franchises, and property in the State for purposes of taxation; and this tax is in lieu of all other taxes on its franchises, funded and floating debt, and railroad property in the State.

When any part of a railroad lies in Connecticut, the company owning such road pays 1 per cent on such proportion of said valuation as the length of its road lying in the State bears to the entire length of the road.

But in fixing the valuation the length of any branch thereof in the State of less value per mile than one-fourth of the average value per mile of the trunk road is excluded, and every such branch is estimated at its just and true value, and assessed at said rate.

In the case of any railroad company, which during the 2 years preceding the making of the annual return has paid regular dividends at the same annual rate per cent on all or any class of its shares of stock, the market value of each share of said stock is by law declared to be the average of the closing bids or prices offered for said stock or any shares thereof, during the 12 consecutive months preceding the making of such returns, as regularly published by any board of directors, unless the State board considers it desirable that the market value thereof shall be otherwise ascertained.

In all cases where, for any reason, it is not possible or feasible to fix the market value of any stock in the manner described, the value in the return is fixed at the price of the last reported market sale of such stock, and the board may fix and determine the valuation according to the best information they can obtain.

From the judgment and determination of the State board of equalization as to valuation there is no appeal except through the courts.

The amount of taxes paid by railroads in this State in 1899 was \$965,502.92. Individuals are not taxed either on the stock or the securities of railroad companies in the State held by them.

STREET RAILWAYS.

The foregoing methods and laws with regard to the taxation of railroads apply also to and include all street railways of every description. The amount paid by street railways in 1899 was \$188,502.78.

TAX ON NONRESIDENT STOCK.

The cashier or secretary of each corporation whose stock is liable to taxation, and not otherwise taxed under the provisions of the laws for the taxation of corporations, is required to deliver annually to the State controller a sworn list of its stockholders residing without the State, and the number and market value of the shares of stock therein belonging to each, and to pay to the State $1\frac{1}{4}$ per cent of such value, under penalty of forfeiture of \$100 in addition to said $1\frac{1}{4}$ per cent for neglect to comply with these provisions. The yield from this tax, mostly from banks, trust companies, and insurance companies, in 1899 was \$167,537.27.

DOMESTIC INSURANCE COMPANIES.

The secretary or treasurer of every mutual fire or life insurance company chartered by the State is required annually to render to the controller a sworn statement showing the total amount of its assets and market value thereof, the amount of premium notes held by it, with certain deductions for unpaid losses, and real estate liable to taxation in this State and other exempt property; and every such mutual fire-insurance company is required to pay as a tax upon its corporate franchise three-fourths of 1 per cent of such valuation remaining, and every such mutual life-insurance company is required to pay to the State annually as a tax upon its corporate franchise a sum equal to one-fourth of 1 per cent on the total amount of its premium notes, and on the market value of all its other assets, deducting its unpaid losses and the market value of its real estate taxed locally, and other property that may be exempt from taxation.

These sums so required to be paid by fire and life insurance companies annually are in lieu of all other taxes upon their assets, except upon real estate held over and above what may be necessarily used in transacting their appropriate business, and in case of a life-insurance company except its taxable stock.

The yield of these taxes in 1899 was:

Tax on mutual fire-insurance companies.....	\$11,036.88
Tax on mutual life-insurance companies.....	283,817.12
Total	294,853.60

FOREIGN INSURANCE COMPANIES.

Every insurance company organized under the laws of another State, and doing business in Connecticut, and each agent of every such insurance company, is required to pay to the insurance commissioner of this State reciprocal taxes, or the same fees and taxes as are imposed by such other State upon any similar Connecticut insurance company transacting business in such other State, and every agent of any insurance company organized under the laws of any foreign government, licensed to do business in Connecticut, is required to pay to the insurance commissioner an annual tax of 2 per cent upon the amount of premiums collected or received during the year. The receipts of the insurance commissioner for 1899 were \$77,946.98.

SAVINGS BANKS.

The treasurer of each savings bank is required annually to make to the State controller a sworn statement of all its deposits, exclusive of surplus, and each bank to pay to the State an annual tax on its corporate franchise equal to one-fourth of 1 per cent on the amount of its deposits, exclusive of surplus, deducting, however, from said deposits the sum of \$50,000 and certain classes of bonds exempt, said tax being in lieu of all other taxes upon such bank, its deposits and surplus, except upon real estate owned by it not required and used in its appropriate business. The amount of this tax in 1899 was \$392,782.98.

NATIONAL BANKS.

The cashier of each National bank in the State is annually required to give to the treasurer of the town where such bank is located a sworn list of all its stockholders residing outside of the State, and the number of shares belonging to each and the market value thereof, and to pay to the treasurer a tax of $1\frac{1}{4}$ per cent of such value; and upon failure to comply with this provision forfeits to such town \$100, together with such $1\frac{1}{4}$ per cent required to be paid.

TELEGRAPH AND TELEPHONE COMPANIES.

A tax is imposed upon telegraph companies of 25 cents per mile of wire, and on telephone companies of 70 cents for each transmitter, based upon sworn reports. The amount of this tax in 1899 was \$14,026.65.

EXPRESS COMPANIES.

Every express company doing an express business in Connecticut is required to deliver to the State controller annually a sworn statement of the gross amount of express charges paid at each of its offices in the State during the preceding year, and pay to the State 5 per cent of the gross amount of all express charges paid to it in the State during the preceding year, which sum is in lieu of all other taxes upon the estate of such company used exclusively in the express business; but when any such express company fails to make such return the treasurer may accept \$100 in lieu of the sum then due.

The amount of such tax in 1899, paid by the Adams and American express companies, was \$9,958.86.

CHARTER FEES ON CAPITAL STOCK.

The law provides for charter fees on capital stock of new corporations organized under the general law, at 50 cents per \$1,000, but on corporations organized to do business exclusively within the State, 10 cents per \$1,000. There is a tax of \$1 per \$1,000, or not less than \$50 for any one company, for special charters for incorporation.

The amount of this tax in 1899 was \$28,846.

INVESTMENT TAX.

A special tax is imposed upon investment companies and investment brokers at 1 per cent on the aggregate amount of all choses in action secured by mortgages on real estate in any other State or Territory. Such company or broker is required to secure from the State treasurer a certificate of authority to act in such capacity and to make annual reports of the amounts of such securities sold during the preceding year, and pay to the State a sum equal to 1 per cent on the aggregate of all such securities.

This is regarded rather in the nature of a penalty for nonpayment of the 4-mill tax in the following statutory provision, most of such foreign securities paying such 4-mill tax before negotiation.

It is specially provided that any person may take or send to the State treasurer any bond, note, or other chose in action, or description of the same, and may pay to the State a tax of 2 per cent (formerly 1 per cent) on the face amount thereof for 5 years, or at the option of such person for a greater or less number of years at the same rate, and the treasurer thereupon certifies that the same is exempt for such period, and all bonds, notes, and other choses in action so certified are exempt from all taxation in the State during the period for which said tax is paid.

The law for such investment tax was enacted in 1890, and the taxes paid under it are shown by the following table:

Fiscal year ending—	Rates.	Number of notes, etc.	Amount of notes, etc.	Tax.
	<i>Mills.</i>			
1890	2	44,501	\$88,654,385.00	\$129,452.06
1891	2	30,061	24,792,509.04	80,524.47
1892	2	44,635	89,473,988.78	108,433.96
1893	2	16,863	12,418,673.91	33,991.48
1894	2	25,583	20,507,396.21	56,008.88
1895	2	23,719	16,688,548.90	66,861.83
1896	2	24,338	21,159,161.35	48,576.77
1897	2	14,496	14,580,981.67	44,543.84
1898	4	7,974	7,435,807.02	32,194.53
1898	4	21,910	20,637,648.59	87,177.19
1899	4	23,036	21,597,311.43	92,425.12

This 4-mill annual tax applies to bonds and notes held in the State not otherwise taxed, and is quite generally taken advantage of by the holders.

It will be observed that the largest amounts of such securities returned and taxes paid were in the first years of the law, 1890 to 1893.

The foregoing special taxes, with some other minor receipts, constitute all the sources of revenue for State purposes, and the total revenues therefrom in recent years have exceeded the State expenditures for current purposes, leaving a considerable amount for the payment of the State debt.

The State tax commissioners, in their report made in 1887, at a time when a portion of the State revenues was raised by direct tax on property in the several local taxing districts, stated that they did not believe it would be either practicable or desirable to dispense with the direct State tax. They gave as a reason for such belief that the weight of this tax came home to every taxpayer in an increase of his town rate, which he could not fail to feel, and made the whole community watchful of any unnecessary appropriation from the public treasury; and if all the revenue of the State were derived from corporations or other sources not directly affecting the individual taxpayer, it would be apt to be expended with less thought and care.

For some years last past all the revenues of the State have been derived from corporations and other sources not directly affecting the individual taxpayer, with the effect as to amount of revenues already stated. We were informed by a State official in conversation that the State taxes so raised were expended liberally and without strict regard for economy, and the separation of State taxes from local was apparently conducive to liberality in public expenditures.

MILITARY COMMUTATION TAX.

An annual tax of \$2 in commutation of military duty is imposed upon every male citizen between the ages of 18 and 45 not exempt therefrom by law, which is paid in the manner provided for town taxes, and remitted to the State treasurer for the use of the State. While special laws have been enacted looking to the enforcement of this tax, it does not appear to be generally enforced and collected, especially in the cities.

In 1899 \$150,598.84 was paid by 83,644 persons.

INHERITANCE TAX.

An inheritance tax, so called, is imposed upon all estates of deceased persons in excess of \$10,000. Where the estate passes to direct heirs the tax is \$5 on each \$1,000 of the excess above \$10,000, and where it passes to collateral heirs the rate is \$30 on each \$1,000 of such excess.

The amount of this tax in 1899 was \$115,195.80.

NEW YORK.

The controller of New York, in his report for 1898, commenting upon "the confused, illogical, and conflicting" condition of the taxation laws of the State, says: "Investigation shows that they have been largely adopted, from time to time, simply to meet the increasing expenditures of the State, with little regard to economic or any just and equitable principle. They were framed rather in accord with the witty Frenchman's definition of taxation, 'the plucking of the goose in such manner as to get the most feathers with the least squawking.' In a word, it must be confessed that nearly all our tax laws are legislative make-shifts and many of them blunders."

It may be said, however, that the officers of the State who have to do with the system of taxation, from the governor down, have of late years kept up such persistent "squawking" over the inefficiency and inequality of the present system of taxation that public thought is fully aroused upon the subject of revision and reform of the taxation laws, and in obedience to the public will important legislation in that direction has already resulted, and the subject is now a live issue in that State.

GENERAL PROPERTY TAX.

The system of a uniform tax upon the assessed valuation of all kinds of property prevails. The methods of assessment employed are conducive to defective assessment and valuation, especially in respect to personal property. The assessment of real and personal property, including corporate property not specially exempt, is made by local, township, or ward assessors for State, county, and local purposes, and in a measure "the lower the assessment, the lower the tax." This method creates a rivalry among local assessing officers for advantage to their respective districts by low assessments of property, resulting in gross inequalities and discriminations. There are also elements of personal advantage to assessors and political influences contributing to unfair and unjust assessments.

The amount of State tax required from property assessment, based on previous valuation of real and personal property, is fixed by annual bills in the legislature and apportioned among counties according to their assessed valuation, the county taxes apportioned among the townships and smaller taxing districts, so that all taxes, State, county, and local, with the exceptions referred to, are raised upon the basis of local assessments paid to local collectors, who retain the local tax and remit the county and State taxes to the county treasurer, who in turn remits the State tax to the State treasury. About one-half of the State revenues is thus raised by local assessment and the other half by special methods hereafter referred to.

The board of supervisors is charged with the equalization of assessments and valuations of the several districts in the county. The entire assessment system is under the supervision of a State board of tax commissioners, two or more of whom are by law required to officially visit every county in the State at least once in 2 years and inquire into the methods of assessment and taxation, and see whether the assessors faithfully discharge their duties. In addition to this, there is a State board of equalization composed of the State tax commissioners and commissioner of the land office, who meet each year for the purpose of examining and revising the valuations of real and personal property of the several counties in the State. The rate of taxation is governed in each taxing district by the requirements for State, county, and local purposes.

REAL ESTATE.

For our purpose, little need be said as to the taxation of real estate generally. The law provides that all real estate not expressly exempt shall be assessed and taxed by local assessors where located at its full cash value.

Practically all real estate not exempt is assessed, but by no means at full or uniform value. Although the law requiring assessment of real estate at its full

market value applies to all counties alike, yet the report of State tax commissioners for 1898 shows that in their judgment real estate was assessed at varying proportions of its full value in the several counties, ranging from 50 per cent in one county to 90 per cent in another. The 60 counties of the State had 25 different percentages of full value at which real estate was assessed. There is a like disparity among the towns of the same county.

The assessed valuation of real estate in 1899 was \$4,413,848,496, or about 7 times the valuation of the personal property of the State. This significant discrepancy is further emphasized when followed through the collection of taxes for State, county, and town purposes. The latest returns for that purpose at hand are those of 1897. For that year the total amount of taxes for the purposes named was \$80,865,704. Of this amount, real estate paid \$72,353,268 and personalty \$8,507,436, or a little more than one-tenth of the total. These figures are taken from the report of the controller for 1900, who says that, after giving careful attention to the condition of real property in this respect, he is satisfied that "unless relief of some kind is afforded, real estate in a short time will not be worth the owning for investment purposes." He says further, in the same report, that "under the present statutes real estate has to bear nearly the entire burden of tax, while personal property, which is so much better able to contribute, pays very little at the best, while vast amounts escape tax altogether."

Encumbered real estate is assessed to the owner at full value, without deduction for mortgages, the mortgages being assessable to the holders by local assessors at local tax rates.

PERSONAL PROPERTY.

While the reports of State officials emphasize the inefficiency of the present tax laws of New York in regard to real estate, still greater disparity and injustice is shown in the taxation of personal property under the prevailing system. It appears that such property is in small part only assessed, and that very unequally and capriciously. In this connection it may be stated that New York is an exceedingly wealthy State, especially in the manifold forms of personal property.

The report of State tax commissioners for 1900 contains a table showing the percentage of State tax paid by real and personal property in each year from 1867 to 1899, inclusive. In 1867 the percentage paid by personal property was 25.30; it was reduced to 9.94 in 1884, and varied somewhat to 1898, when it reached 11.20; in 1899 it was 13.05, there being a considerable increase in the assessment valuation over previous years. A schedule of assessed valuations of real estate and personal property in the same report shows that in 1867 the valuation of real estate was \$1,327,408,886 and of personal property \$488,685,254. In 1890 the valuation of real estate had gradually increased to \$3,397,234,679, while that of personalty had decreased to \$382,159,067, having in some previous years been considerably lower. From 1890 a steady increase in valuation in both real and personal property is shown, and in 1899 that of real property was \$4,813,779,260 and personalty \$748,424,988.

In 1897 an investigation by the grand jury of Westchester County disclosed the fact that in that wealthy county bordering on New York the ratio of taxable valuation of personal to real property in five towns was only 1 per cent, and in four other towns the ratio was less than 2 per cent. In another town in which the assessor tried to enforce the law the ratio of personal to real was 37 per cent; but for the whole county it was only 8.3 per cent. In the neighboring county of Richmond, in New York Harbor, the rate was only six-tenths of 1 per cent; in Kings County, containing the city of Brooklyn, the ratio was only $4\frac{1}{4}$ per cent; in Monroe County, including the city of Rochester, it was 5.6 per cent; in Erie County, including the city of Buffalo, it was 6.4 per cent, and in the county of Onondaga, including the city of Syracuse, it was 6.7 per cent; while in the almost exclusively agricultural counties of Genesee and Jefferson it was 13 per cent; in Livingston, 14 per cent; in Washington and Warren counties, nearly 20 per cent, and in New York County, $22\frac{1}{4}$ per cent; the ratio in the whole State being 12.6 per cent.

The controller in his report for 1898 gives another striking illustration of the escape of personalty from taxation, found in the figures of 107 estates taken indiscriminately from the inheritance-tax rolls from several of the large and populous counties, the tax actually having been paid, so that the figures are accurate and reliable. The assessed taxable value of these estates was \$3,471,413, while the appraised value at the death of decedents was \$215,891,568, the former being only 1.6 per cent of the latter.

This interesting and instructive examination showed not only gross evasion of taxation, but ridiculous discrimination in the assessment of even the 1.6 per cent;

for while 84 per cent, or one-third, of the estates absolutely escaped taxation, in the estates which did pay the tax varied from two-tenths of 1 per cent to nearly 19 per cent. In his report for 1899 the comptroller says that, excepting the stock of banks and trust companies assessed under a special law, and which can not escape taxation, the assessed valuation of personalty in New York State has not increased during the last 40 years, and that from study and observation he is convinced that not more than 8 per cent of the personal property in the State is assessed; and that the personalty of the State amounts to \$18,000,000,000, or nearly four times the assessed valuation of real estate. In this and other reports he expresses a positive opinion that the attempt to reach personal property, in a general property tax, should be abandoned, as it has been in "practically every civilized community in the world except the United States."

The joint committee on taxation in the last legislature in its report accepts the above estimate of the comptroller as substantially correct, and says that this condition of tax affairs in the State has long been a subject of complaint and a prominent feature of the reports of special committees and commissions on taxation without exception, and has received serious comment in the annual messages of all governors for more than a quarter of a century.

C. C. Plehn, in his work on Public Finance, says that in New York personal property is assessed at a trifle over 11 per cent of the real estate, and about 10 per cent of all property; that according to the census valuation of 1890 there was in New York \$5,817,704,667 worth of real property and \$2,758,997,324 worth of personalty. Real estate was assessed at \$3,403,751,246, or about 58 per cent of its census value, while personal property was assessed at \$383,159,087, or not quite 14 per cent of its census value. "When," he says, "it is remembered that the census report omits some unascertainable items of personal property, it is fair to say that 90 per cent of the personal property in New York is untaxed, where, at the same time, only 42 per cent of real estate is untaxed."

It is said that in two adjoining counties a few years ago there was a difference of \$24,000 per mile in the assessment of the same railroad, illustrating the inequality resulting through the competitive valuation occurring from the levying of State and county taxes upon the basis of township assessment.

This unsatisfactory condition of the taxation laws and the manner of their enforcement has received special attention from State officials and the public generally during the past few years, resulting in some advantageous legislation in the substitution of a board of tax commissioners for the State board of assessors, with enlarged powers for the enforcement of more equitable valuation and assessment of property, in advancement in values, and in the addition of new properties to tax lists by local assessors, as shown in the increased valuation of both real and personal property during the past few years, which has excited considerable criticism and opposition.

The increase for the years 1896, 1897, and 1898 in real estate assessments aggregated \$503,430,083, and in personal assessments, \$216,970,118.

For the purpose of securing more equitable taxation of property, material amendments have been made to corporation and transfer tax laws, which will be referred to under those subjects.

Personal property, in general, is assessed locally for State, county, and local taxes, and that class of property alone is subject to deduction of just debts of owners. All real estate mortgages are included in the indebtedness of taxables, subject to deduction from the valuation of their personalty, a privilege resulting in gross abuses and escape of much property from taxation.

A public official stated to the writer in a general way that one year personal property in the city of New York was assessed at about \$1,400,000,000, and deductions for indebtedness amounted to about \$1,000,000,000.

The personal property of corporations, associations or partnerships, taxable under the law for the taxation of franchises, capital stocks or dividends, is exempt from taxation for State purposes, if the special taxes referred to have been paid, and so with the personal property of a private or individual banker taxed under special law.

The capital of nonresidents of the State, invested in business within the State, is taxable as personal property where the business is carried on to the same extent as if they were residents.

Debts owing to nonresidents of the United States are assessed as other personal property in the State, every agent of such nonresident creditor being required to make annual statement of such taxable property in any county where it may be for the purpose of local assessment and taxation.

The owner or holder of stock in an incorporated company, liable to taxation on its capital, is not taxed as an individual for such stock.

There are no special provisions for the listing of personalty for taxation, and the assessment is made largely by estimate of local assessors. There appears to be strong opposition to the adoption of a listing system; the conclusions of the joint committee on taxation of 1899 as to that method for increasing assessments of personal property, will be referred to in the consideration of its report.

The terms real estate and personal estate are, for purposes of taxation, comprehensively defined in the law of New York as recently amended. Real estate includes the land itself, above and under water, all buildings and other articles and structures erected upon, under or above or affixed to the same; all wharfs and piers, including the value of the right to collect wharfage, crannage, and dockage thereon; all bridges, all telegraph lines, wires, poles, and appurtenances; all supports and inclosures for electrical conductors and other appurtenances upon, above, and under ground; all surface, underground or elevated railroads, including the value of all franchises, rights, or permission to construct, maintain, or operate the same in, under, above, on, or through streets, highways, or public places; all railroad structures, substructures, and superstructures, tracks, and the iron thereon; branches, switches, and other fixtures permitted or authorized to be made, laid, or placed in, upon, above, or under any public or private road, street, or ground; all mains, pipes, and tanks laid or placed in, upon, above, or under any public or private street or place for conducting steam, heat, water, oil, electricity, or any property, substance, or product capable of transportation or conveyance therein or that is protected thereby, including the value of all franchises, rights, authority, or permission to construct, maintain, or operate, in, under, above, upon, or through any streets, highways, or public places, any mains, pipes, tanks, conduits, or wires with their appurtenances for conducting water, steam, heat, power, gas, oil, or other substance, or electricity for telegraphic, telephonic, or other purposes; all trees and underwood growing upon land, and all mines, minerals, quarries, and fossils in and under the same, except mines belonging to the State.

A franchise or right is designated as a "special franchise," and is deemed to include the value of the tangible property of a person, copartnership, association, or corporation situated in, upon, under or above any street, highway, public place or public waters, in connection with the special franchise, and such tangible property is taxed as a part of the special franchise.

The term "personal property" includes chattels, money, things in action, debts due from solvent debtors, whether on account, contract, note, bond, or mortgage; debts and obligations for the payment of money due or owing to persons residing within this State, however secured or wherever such securities shall be held; debts due by inhabitants of this State to persons not residing within the United States for the purchase of any real estate, public stocks, stocks in moneyed corporations, and such portion of the capital of incorporated companies liable to taxation on their capital as shall not be invested in real estate.

MORTGAGES.

This species of property, except when held by savings banks, life insurance companies, building and loan associations, and nonresidents, is subject to assessment at full value in the local tax district where the holders reside, at the local tax rate in each locality. This local rate varies, but will average at least 2 per cent.

As a matter of fact, however, this class of property, while legally taxable, yields very little revenue, and usually succeeds in avoiding the tax rolls. When the local assessors do happen to find it and place it upon the roll, it is usually in the case of trustee, guardian, executor, or the abnormally conscientious citizen of the State, in which case the local tax rate upon a high valuation operates with undue severity, and subjects the mortgage property to many times the tax actually paid by personal property in general. It subjects those who are taxed upon such security to the gross injustice of a tax equal to one-half the income thereon, while the great mass of mortgages escape entirely.

The joint legislative committee on taxation, after careful investigation, reported the estimated value of the mortgage indebtedness of the State to be \$2,000,000,000. The assessed valuation of all personal property in the State was only \$748,424,938.

The committee, in view of these facts, and taking into consideration the revenue needs of the State, the effect upon the rate of interest, and the condition of borrowers of the State, recommended in lieu of other taxes a State tax of 5 mills on the dollar upon indebtedness secured by mortgage upon corporate and individual real property, estimating the State revenue that would be derived therefrom at \$10,000,000, being the amount of State taxes now raised by direct levy upon real estate. After careful investigation, the committee concluded that although mort

gages generally escape taxation, under the existing system, the liability to tax affects the interest rate to the extent of one-half of 1 per cent now, so that the exemption of mortgages from all taxation, except to the extent of a State tax of one-half of 1 per cent, would produce no substantial change in the average rate of interest in the State.

The committee contended that the tax would not be subject to the common objection of double taxation, "a phrase which is itself brimful of duplicity and highly convenient for sophistical reasoners," for the reason that the mortgage would be subject only to a State tax, while the land would be subject to local taxation alone under the plan to raise all the State revenue otherwise than by direct levy upon assessed valuations of real and personal property.

In the taxation of mortgages under the proposed plan, recourse would be had by the State to mortgage records, therefore none would escape, and opportunity for tax dodging would be removed. There would be no deduction for debts and no exemptions, and the revenue from that source would be steady and reliable.

TAXATION OF CORPORATIONS.

While the general property tax is the main part of the system of New York for even State purposes, it is supplemented by certain other methods for reaching corporate property. The existing corporation tax law in its entirety is one of the most complicated and clumsy statutes on the books.

In general, the real estate of all incorporated companies liable to taxation, including that of quasi-public corporations, is required to be assessed in the tax district where it is located in the same manner as real estate of individuals, and the personal property of such companies in the tax district where their principal offices are located. The reports of corporations as to personal property are meager, and the assessment thereof by local assessors is in practice arbitrary and largely estimated.

The law also requires the capital stock of every company liable to taxation, except such part as shall have been excepted on the assessment roll or exempt by law, together with its surplus profits or reserve funds exceeding 10 per centum of its capital, after deducting the assessed value of its real estate, and all shares of stock in other corporations owned and otherwise taxable, to be assessed at its actual value.

Every moneyed or stock corporation deriving an income or profit from its capital or otherwise, is required under penalties for failure, to give annual verified written statements to the assessors of the tax district in which it is liable to be taxed, showing:

First. Its real property, location, and unless a railroad corporation, the sums actually paid therefor.

Second. The capital stock actually paid in, or secured to be paid in, excepting sums paid for realty and capital stock held by the State and by any incorporated literary or charitable institution.

Third. The tax district in which its principal office is located or operations carried on.

The assessors are required to assess corporations liable to taxation in their respective districts as follows:

In one column, the name, amount of capital stock paid, amount paid for real property, amount of surplus profits or reserve funds exceeding 10 per cent of capital, after deducting real property and stock exempt; in another, the real property, except special franchises, and value thereof; in another, the capital stock paid, and surplus profits as aforesaid, after deducting sums paid for real estate and amount of stock exempt; in another, the value of any special franchise owned by it as fixed by the State board of tax commissioners, in accordance with the provisions of the franchise tax act of 1899.

SPECIAL FRANCHISE TAX.

In May, 1899, the legislature of New York passed an important act amending the tax law of the State in relation to the taxation of public franchises as real property. It provides for the valuation of each special franchise subject to assessment in each city, town, village, or tax district by the State board of tax commissioners, and the filing of a written statement of such valuations as fixed by said board, preceding each annual assessment of property, with the clerk of each city, town, or village; such valuation so fixed being the assessed valuation on which all taxes based on such special franchises shall be levied by the local assessing officers.

For this purpose every person, copartnership, association, or corporation subject to taxation on a special franchise is required to make a written report duly verified to such board containing a full description of every such franchise possessed or enjoyed, and a statement of the authority under which the same is held, together with such other information relating to the value thereof as such board may require, and supplemental reports as requested by such board.

Notice of hearing on each special franchise assessment is required to be given by said board to each franchise taxable.

When such special franchise tax is due and payable, any tax that may have been paid by the taxable within the year preceding to any city, town, or village, under any agreement or statute, based upon a percentage of gross earnings, or any other income or license fee, or any sum of money on account of such special franchise, is to be deducted from such tax based upon the assessment of such board, and the remainder shall be the tax on such special franchise payable for city, town, or village purposes.

The imposition of such special franchise tax does not relieve from any other tax provided by law, but tangible property subject to such franchise tax situated in, upon, under, or above any street, highway, public place, or public waters is not otherwise taxable.

The rates of taxation upon special franchise assessments is the same as on other property locally assessed and equalized and expended by the boards of supervisors of the several counties. It is expected that this franchise tax will yield a large revenue and relieve real estate and taxable personalty.

The clerk of each board of supervisors is required to deliver to the county treasurer a statement showing the names, valuation of property, and amount of tax of every railroad corporation, telegraph, telephone, and electric-light line in each tax district in the county, and each company may, upon receipt of notice of such statement, pay its tax with one per centum fees to the county treasurer, who is required to credit the same to the collector of the tax district.

The corporation taxes above referred to on real and personal property, capital stock, and special franchises being mingled in assessment and taxation with other property on local assessment rolls, we are unable to give the amount of such taxes paid by the several classes of corporations separately, except in some instances hereafter referred to.

There are, however, in addition to the taxes already referred to, other special taxes imposed on corporations requiring special notice.

ORGANIZATION TAX.

Every stock corporation organized under any law of the State is required to pay to the State treasurer a tax of one-eighth of 1 per cent upon the amount of stock authorized or any subsequent increase thereof. This does not apply, however, to State and national banks, or to building, mutual loan, accumulating fund, and cooperative associations. This tax yielded in 1899 \$474,667.65.

LICENSE TAX ON FOREIGN CORPORATIONS.

Every foreign corporation, joint stock company, or association, except banking, fire, marine, casualty, and life insurance companies, and corporations wholly engaged in carrying on manufactures in this State, cooperative fraternal insurance companies, and building and loan associations, authorized to do business under the general corporation law, is required to pay to the State treasurer for the use of the State a license fee of one-eighth of 1 per cent for the privilege of exercising its corporate franchises or carrying on its business in the State, to be computed upon the basis of the capital stock employed by it during the first year of carrying on business in the State.

This tax was in 1898, \$3,454.58; 1899, \$2,981.88.

CAPITAL STOCK TAX ON CORPORATIONS.

Every corporation organized under the laws of New York must also pay to the State treasurer an annual tax, to be computed upon the basis of the amount of its capital stock employed within the State at the rate of one-quarter of a mill for each 1 per centum of dividends made and declared upon its capital stock during the year, if the dividend amounts to 6 per cent or more upon the par value of such capital stock; if less than 6 per cent on the par value of the capital stock, the tax is at the rate of 1½ mills upon such proportion of the capital stock at par

as the amount of the capital employed within the State bears to the entire capital of the corporation. If no dividend is made, the tax is at the rate of 1½ mills upon each dollar of the appraised capital employed within the State.

If such corporation has more than one kind of capital stock, and upon one dividends amounting to 6 or more per cent upon the par value thereof have been made and upon the other no dividends made, or less than 6 per cent, then the tax is at the rate of one-fourth of a mill for each 1 per cent of dividends upon the former, and in addition a tax of 1½ mills upon every dollar of the valuation of the latter.

Foreign corporations must pay a like tax for the privilege of carrying on business within the State, computed upon the basis of the capital employed within the State.

Certain corporations are exempted from this tax, viz: Banks, savings banks, institutions for savings, insurance or surety companies, laundry corporations, manufacturing corporations to the extent of capital employed within the State in manufacturing and selling, mining corporations engaged in mining in the State, agricultural and horticultural societies, and corporations operating elevated railways or surface railroads not operated by steam, gas, water, electric, steam-heating, lighting, and power companies.

TRANSPORTATION AND TRANSMISSION COMPANIES.

An additional excise or license tax is imposed upon steam surface railroad, canal, steamboat, ferry, express, navigation, pipe line, transfer, baggage, express, telegraph, telephone, palace, or sleeping-car companies, and all other transportation companies except elevated railroads and surface railroads not operated by steam. This tax is at the rate of five-tenths of 1 per cent upon the gross earnings within the State, not including earnings derived from business of an interstate character.

STREET AND ELEVATED RAILROADS.

A like tax is imposed by the State on corporations operating any elevated railroad or surface railroad not operated by steam, amounting to 1 per cent upon gross earnings from all sources within the State, and 8 per cent upon the amount of dividends declared or paid in excess of 4 per cent upon the actual amount of paid-up capital employed.

WATER, GAS, AND ELECTRIC COMPANIES, ETC.

Corporations formed for supplying water or gas, or for electric or steam-heating, lighting, or power purposes, must also pay a franchise tax of five-tenths of 1 per cent upon their gross earnings from all sources within the State, and 8 per cent upon the amount of dividends declared or paid in excess of 4 per cent upon the actual amount of paid-up capital employed.

INSURANCE CORPORATIONS.

Every insurance or surety corporation doing business in the State, except fire, marine, or casualty companies of another State, must pay to the treasury of the State an annual tax of five-tenths of 1 per cent upon the gross amount of premiums received for business done in the State.

Life insurance companies and purely mutual benefit associations, whose funds are for the benefit of members, their families or heirs, or made up of contributions of members, are exempt from this tax.

FOREIGN BANKERS.

Every foreign banker, corporation, or partnership doing business in the State must pay to the treasurer a tax of one-half of 1 per cent on business done in the State, to be ascertained by computing the daily average for each month of business done and dividing the aggregate of such monthly averages by the number of months during which business was done in the preceding year.

The special taxes upon the several classes of corporations above enumerated are based upon detailed, verified reports of the corporations to the State controller, who is empowered to examine books and records and take testimony and proofs as to such corporations. The special taxes on corporations above set forth are for State purposes.

The personal property of every corporation or partnership subject to the foregoing special taxes, other than the organization tax, is exempt from taxation for State purposes if such special taxes have been paid. This exemption is regarded as a defect in the corporation tax laws of New York, and it is claimed that large numbers of corporations take advantage of this provision to evade and escape just taxation.

Another defect in the corporation tax law, pointed out by the controller in his report of 1900, is the provision referred to, taxing only so much of the capital of a corporation as is "employed in doing business in this State," as it is said to permit of the successful introduction of subterfuges for the evasion of taxation. It is pointed out as a notorious fact that very many corporations whose plants are located in New York and whose business is chiefly transacted there escape all special taxation in that State and much local taxation by reason of being incorporated in other States. Changes in these respects in the corporation laws of New York are advocated, and are receiving consideration by the legislature.

The yield of the foregoing special corporation taxes to the State, other than the organization tax, was as follows for 1899:

Insurance companies:		
Tax based on premiums	\$116,620.93	
Tax based on capital	8,745.60	
		\$125,366.53
Transportation companies:		
Tax based on earnings	827,567.97	
Tax based on capital	426,844.57	
		1,254,412.54
Telegraph and telephone companies:		
Tax based on earnings	49,245.94	
Tax based on capital	70,982.27	
		120,178.21
Mining and miscellaneous companies: Tax based on dividends and capital only		
		453,312.80
Foreign and other State banks		
		55,089.20
Water works, gas, electric or steam heating, lighting, and power companies: Tax based on earnings and dividends		
		255,310.24
License fees from foreign corporations		
		2,981.88
Total		2,266,650.40

A distinguishing feature of these sources of revenue is the economical manner in which the corporation tax laws are administered. The amount of corporation taxes collected in 1899, as above stated, was the largest ever obtained, and the cost of collection was only a trifle over 1 cent on the dollar, this expense including salaries of clerks in the corporation tax bureau of the controller's office, the expense of commissioners at the cities of New York and Buffalo, and of expert examiners—in short, all expenditures connected with the collection of corporation taxes.

BANKS.

The law provides that the stockholders of every organized bank in the State shall be assessed and taxed on the value of their shares of stock therein, such shares being included in the valuation of the personal property of stockholders in the assessment of the tax district where the bank is located, regardless of the residence of the stockholders themselves.

Every individual banker is taxable upon the amount of capital invested in his banking business in the district where the place of such business is located, and for that purpose is deemed a resident of such district. He is required to make an annual report to the assessors of such district of the amount of capital invested in such banking business, such capital being assessed as personal property to such banker.

Every organized bank or banking association doing business in New York is required to make a duly verified report of its condition annually to the assessors of the tax district in which the principal office is located, and also to the State board of tax commissioners, showing the amount of its authorized capital stock, the number and par value of shares, the amount of stock paid in, the date and rate per cent of each dividend declared during the previous year, the capital employed during the year, the amount of surplus, amount and value of real estate, a complete list of names and residences of stockholders and number of shares held by each, and such other information as the State board may require.

In assessing such shares of stock each stockholder is allowed all the deductions and exceptions allowed by law in assessing the value of other taxable property owned by individual citizens of the State, and it is especially provided that the assessment shall not be at a greater rate than is made or assessed upon other moneyed capital in the hands of individual citizens. There is also deducted from the value of such shares a sum which bears the same proportion to such value as the assessed value of real property of such bank bears to the capital stock itself, such realty being assessed to the bank.

The principle of "stoppage at the source" is invoked, and every bank is required to retain any dividend that may be payable until the delivery of the tax roll and warrant of the current year, and within 10 days thereafter is required to pay the collector so much of the dividend as may be necessary to pay any unpaid taxes assessed in the State.

The tax is made a lien on the shares of stock until the payment thereof, and if stock is transferred it remains subject to such lien.

The shares of stock are taxed at local tax rates, the same as other individual property. The banks are exempt from special corporation tax on capital stock or dividends.

It will be observed that by this method the shares of stock in banks are assessed at their full value, and there is no escape from taxation thereof except by the abuse of the privilege of deduction of the indebtedness of shareholders.

In conversation with an eminent lawyer of this State, who is counsel for the State in taxation matters, he stated in a general way that the only property in the State taxed at substantially uniform value was bank stock, which, in his judgment, was excessively taxed as compared with other property.

Trust companies do not come within the law for the taxation of banks, as the courts have held that, in a commercial sense, such companies are not banks, and do not come within the bank taxation laws. Their franchises are not taxable, and the value of stock is held to be partly franchise and not taxable under present laws, hence under the existing law they bear a small proportion of taxation as compared with other banking institutions, with which, in many ways, they compete. The report of the bank superintendent on savings banks and trust companies for 1899 shows that the capital, surplus, and undivided profits of the trust companies of New York were for that year \$97,000,000, and that the total amount of taxes paid during the preceding year was \$455,557, the average rate being less than 5 mills on the dollar. They are apparently regarded as insufficiently taxed, and some of the State and national banks are considered too heavily burdened under the present method.

The tax on foreign banks doing business in New York has been referred to under the head of corporation taxes.

The deposits in savings banks which are due depositors are exempt from taxation, as is also the surplus of such banks. Such deposits and surplus amount to about a billion of dollars.

TAXATION OF RAILROADS.

While the above report on the taxation of corporations applies to railroads, for greater clearness the taxation of such property is here considered separately.

The real estate of railroads in New York, as well as that of other quasi-public corporations, is assessed in the local tax district where it is situated, by estimate of assessors rather than upon definite reports, and the tangible personal property where the principal office of the company is located. This property is mingled with other property on local assessment rolls and taxed at local rates. This class of property, as well as other real estate and tangible property locally taxed, will be affected by the franchise tax under the new law elsewhere referred to.

Railroad property is also subject to the capital-stock and profits tax, license fee, gross earnings, and other indirect State taxes already referred to.

While the reports of State tax officers do not show the amount of local and State taxes paid by railroads upon the rolls of local tax officers, such property being mingled with other local property, we find from the reports of railroad companies to the State board of railroad commissioners statements of the amounts of taxes paid and value of property for the year ending June 30, 1899, as follows:

Total amount of taxes paid by New York railroads.....	\$9,049,639.15
Total amount paid outside New York.....	4,851,257.89

The amount paid in New York	4,198,381.26
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This amount, we understand, includes all taxes within the State, both local and State.

This report also shows the value of property and earnings as follows:

Total stock and debt.....	\$1,661,888,878.00
Gross earnings	220,027,732.90
Operating expenses.....	149,411,833.05
Net earnings	170,616,389.85

These amounts, it will be observed, include all property, values, and earnings of New York railroads, both within and without the State. From this it appears that the rate of taxation paid by New York railroads on the total amount of their stock and debts within and without the State was 0.005446 per cent, and the rate of taxation upon their total gross earnings was 0.041 per cent. While these rates, of course, do not accurately represent the aggregate rates paid in the State of New York, they would represent them approximately. In 1899 the joint committee on taxation in the legislature, with a view to withdrawing from local taxation steam railroads and other quasi-public corporations and taxing them directly for State purposes, and in order to determine the feasibility of such a plan, made an investigation in three counties to ascertain the proportion of the total tax raised in the said counties by such companies, and found that in the county of Oswego in 1897 the sum of \$627,759.82 was raised by taxation for all purposes, and that of this sum the steam railroads paid 9.08 per cent; in Cattaraugus County in 1898 \$484,858.22 was raised for all purposes, and of this sum the steam railroads paid 11.89 per cent; and in Chenango County in 1897 \$317,837.69 was raised, and of this sum steam railroads paid 7.97 per cent.

In some school districts in the counties named the steam railroads alone paid 50 per cent of the taxes.

The committee said that the labor involved in the exact ascertainment of taxes paid by such corporations was so great that more counties could not be analyzed, but it is safe to say that these three counties furnish a criterion for the rest of the State.

ELEVATED STEAM RAILROADS.

The value of property, amount of gross earnings, and amount of taxes paid by these roads for the year ending June 30, 1899, are as follows:

Capital stock and debt	\$139,099,921.86
Cost of road and equipment.....	109,100,889.90
Gross earnings	10,777,139.50
Operating expenses.....	6,771,528.23
Net earnings	4,005,611.27
Taxes and miscellaneous	966,701.13

What portion of the amount is represented by miscellaneous we are unable to state, but presumably the greater part of it is taxes.

SURFACE STREET RAILROADS.

The valuation and amounts of gross earnings and taxes paid by these roads for the year ending June 30, 1899, are as follows:

Capital stock and debt.....	\$318,040,804.88
Gross earnings	85,460,822.71
Net earnings	14,818,259.08
Taxes	1,601,449.06

EXCISE TAX ON SALES OF LIQUOR.

The amount realized by the State of New York from this source for the year 1899 was \$4,231,278.56, being one-quarter of the total taxes paid; the remaining three-quarters being retained by local tax districts.

TRANSFER OR INHERITANCE TAX.

A tax greatly favored in New York is the inheritance tax, imposed upon the transfer of property, real or personal, of the value of \$500 or over, or of any interest therein or income therefrom, in trust or otherwise, to persons or corporations not exempt by law from taxation on real or personal property, in the following cases:

First. When the transfer is by will or by the intestate laws of the State, from any person dying possessed of the property while a resident of the State.

Second. When the transfer is by will or intestate law, of property within the State, and the decedent was a nonresident of the State at the time of his death.

Third. When the transfer is of property made by a resident, or by a nonresident of property within the State, by deed, grant, bargain, sale, or gift, made in contemplation of the death of the grantor, vendor, or donor, or intended to take effect after death.

Fourth. Such tax is imposed when any person or corporation becomes beneficially entitled to property or income thereof by any such transfer.

The tax is fixed by law at the rate of 5 per cent upon the clear market value of such property; but where the property or interest passes to direct or lineal descendants enumerated in the act it is not taxable unless it is personal property of the value of \$10,000 or more, in which case it is taxable at the rate of 1 per cent on the clear market value.

This tax is made a lien upon the property transferred, and the transferee and the administrator, executors, and trustees of every estate so transferred are made personally liable for such tax until payment. If a foreign executor, administrator, or trustee assigns or transfers any stock or obligation in the State standing in the name of or in trust for a decedent liable to any transfer tax, such tax must be paid to the treasurer of the proper county on the transfer thereof.

No safe-deposit company, bank, or other institution, person, or persons holding securities or assets of the decedent can legally deliver or transfer the same to the executor, administrator, or legal representative of said decedent unless notice of the time and place of such intended transfer is served upon the county treasurer or controller at least 5 days prior to such transfer.

All transfer taxes levied and collected are paid into the treasury of the State for the use of the State.

The amount of transfer taxes collected in 1899 was \$2,194,612.24, an increase of \$197,402 over the previous year, being the largest amount returned to the State in any one year except 1893, when 4 large estates paid over \$1,100,000 taxes.

The number of estates on which such tax was paid was 2,721; the number appraised during the year was 3,549, in which orders assessing the tax were made in 2,895 and 654 were held exempt.

The records of transfers during a limited period, prior to the death of the party whose estate might be liable to this tax, are closely scrutinized to determine whether any such transfers were made in contemplation of death.

REPORT OF THE JOINT COMMITTEE.

In 1899 a resolution was adopted by the legislature of New York reciting the unsatisfactory condition of the tax laws of the State, and the necessity for their modification and revision upon a just and wise basis, and providing for the selection of a joint committee of the senate and assembly for the purpose of examining and considering the subject and reporting thereon.

The committee employed eminent counsel, and made a thorough investigation of the subject of taxation, holding meetings in various portions of the State, and giving hearings to various classes of property interests. Its report recommended material changes in the existing system of taxation.

Referring to the fact that many intelligent and thoughtful persons in the State advocated reform of taxation by exempting personal property entirely and levying all taxes upon real estate, the committee expressed the opinion that a vast majority of the people of the State disagreed with such a proposition and believed the burdens of taxation to be best distributed by the taxation of different classes of property in the hands of its actual owners and the burdens now borne by real estate to be unduly grievous. But the committee did not believe that any change in existing tax laws looking to increased assessment of personalty would meet the condition without the adoption of the so-called listing system, which it was loath to recommend because it has invariably been disappointing in its ultimate results and was deemed inquisitorial and repugnant to the true American spirit. Capital has left the jurisdiction of the State where it has been tried. The committee declared, however, the sentiment of the people to be such that unless a system of taxation is adopted which will compel the payment of a larger proportion

of the public burden by personal property, the State, although a commercial State, will be forced to adopt a statute similar to those of Ohio and Illinois, compelling every citizen to list his entire property for taxation.

The committee formed the opinion, which it positively expressed, that the most practical reform in the existing tax laws in the State lies in the direction of raising State revenues otherwise than by the direct levy upon the assessed valuations of real and personal property by annual bills, and laid it down as a fundamental principle of government that such a political entity as a State should have an independent jurisdiction, into which it alone may go and from which it may realize sufficient revenue for its own support.

The committee therefore sought for subjects of taxation which, together with the revenue now collected by the State, would be sufficient for the support of the State government.

At the outset it was believed that this purpose might be accomplished by withdrawing from local taxation steam and surface railroads, telegraph, telephone, electric light and power companies, gas, water, and pipe-line companies, and banks and trust companies, and by levying upon such corporations a definite, fixed rate of taxation for State purposes. A careful analysis, however, of the proportionate amounts raised for State, county, city, town, school, and highway purposes in certain counties which were regarded as a reasonable criterion for the whole State, showed that this plan was not feasible, and it was speedily abandoned.

Other suggestions were carefully considered and pursued up to the point where their impracticability or injustice was demonstrated. Among others were the propositions to tax the entire stock of all corporations in the hands of individuals; to tax the entire deposits and surplus of savings banks, amounting to about a billion of dollars, now exempt, and to place an excise license tax upon various forms of business according to the amount of business done each year, the latter being regarded as undesirable for the reasons given for rejecting a listing system. The latter, if embarked upon, should be gradually done, and if adopted should be the result of a system of education upon the subject, as in Pennsylvania.

The committee recommended raising the additional revenue required for State purposes by a tax on mortgages, already referred to, which would yield \$10,000,000; a tax of 1 per cent upon the stock of national and State banks and trust companies, the value of shares to be determined by adding together the capital stock, surplus, and undivided profits, and deducting therefrom the assessed value of their real estate, which would continue to be assessed locally. This tax it was estimated would yield about \$3,000,000, which, with the mortgage tax and present revenue of the State, would produce a sum adequate for the support of the State government.

The advantages anticipated from these recommendations are summarized as follows:

First. There would be no necessity for the equalization of assessments between counties.

Second. The burden of taxation upon the owners of real estate would be reduced to the extent of about \$10,000,000.

Third. The new taxes would be uniform throughout the classes and certain and unvarying in their application. Payment would be enforced, if need be, as in the case of real-estate tax, by divesting the owner of his title. No mortgages would escape. There would be no deduction of debts and no exemptions. Consequently there would be no opportunity for tax dodging, and no occasion for the discontent which the tax-paying owners of personality now so generally and so rightly feel, because others, as well or better able to pay, manage in one way or another to avoid their just share of the burden.

Fourth. The new taxes would be collected without any mischievous inquisitorial process. Mortgages are generally spread upon the public records, and the special policy of other laws has already opened the affairs of banks and trust companies to the supervision of public officials.

Fifth. Counties, towns, and other local subdivisions would raise no taxes, except for their own purposes exclusively, and consequently the entire responsibility would be centered upon the local officials.

The committee also suggested that there should be a material increase in the taxation of corporations incorporated in other States and paying to other States an organization or capital stock tax and yet doing business in New York and employing their capital there. New York, the committee said, can not afford to ignore much longer the discriminating legislation of other States with reference to the organization and taxation of corporations.

The bill embodying the foregoing recommendations which was prepared by the committee and presented to the legislature, although receiving quite careful consideration, was not passed; but we were informed that it was received with favor by legislators and the public generally, and was likely to receive further consideration.

NEW JERSEY.

The segregation of State from local taxes is the distinguishing feature in the system of taxation in this State. Since the year 1884 there has been no direct State tax levied on real and personal property, the revenues derived from the special tax on railroad and canal corporations, riparian lands, the franchise tax on miscellaneous corporations, the tax on intestate estates and collateral inheritances, and official, judicial, and other fees being sufficient to defray all State expenses.

The general system of taxing corporations directly by the State is efficient, simple, certain, and economical so far as it extends.

The confusion in the scattered and fragmentary laws of New Jersey upon the subject of taxation renders it exceedingly difficult to ascertain and determine just what the existing system as to the general property tax is, in all its details.

This confusion is, according to the statements of the State tax commission, one of the principal causes of improper or negligent administration of the tax laws, and the means by which much of the evasion of proper taxation is accomplished.

The codification of the laws relating to taxation is greatly needed and would alone improve the taxation of property in that State.

LOCAL TAXES.

The principal form of local taxation is upon an ad valorem valuation of real and personal property not exempt as returned by assessing officers in local taxing districts.

A poll tax not to exceed \$1 is also assessable to every male inhabitant of full age, excepting volunteer soldiers and sailors, paupers, and insane persons, which is not generally enforced, especially in the cities where it is less popular than in the country districts.

GENERAL PROPERTY TAX.

By a constitutional provision, all property is required to be assessed for taxation under general laws and by uniform rules according to its true value; and the statutes of the State, following out this constitutional provision, expressly direct that property shall be assessed according to its full and actual value. The meaning of the phrase "true value" has been construed by the courts to be that amount of money that any given piece of property would exchange for in money, or the amount of money its holder would be willing to sell it for when not obliged to sell—that is, its real market value.

The usual exemption from taxation is granted to the property of charitable, educational, religious, and public institutions, and also limited exemptions to soldiers, sailors, firemen, and veterans. The amount of exemptions allowed under these heads in 1899 was nearly \$100,000,000 of property valuation, and the State board of taxation notes the gross abuse of these privileges and recommends the greatest possible limitation thereof consistent with sound public policy.

Stocks and other personalty situated outside the State, owned by citizens of the State, upon which taxes are shown to have been assessed and paid where located within 12 months prior to the date of assessment in New Jersey, are exempt from taxation.

The assessment of property in general is made by a single officer elected in each township and borough for a term of 3 years; but in many municipalities the assessors are variously appointed or elected, and are variously designated as assessors, commissioners of assessment of taxes, commissioners of assessment, or board of assessment and revision of taxes. These boards consist of 1, 2, 3, or 5 members, with clerks to assist them.

All property, real and personal, including exempt property, is required to be annually assessed by such officers at its true value. Real estate, individual or

corporate, is required to be assessed in the local taxing district where it is located, and to each inhabitant liable to such tax at the place of his residence. The personal property of nonresidents is taxed in the taxing district where situated. The personal property of corporations is assessed in the taxing district where the principal office is located; and if there is no principal office, in the township or ward where the operation of such company is carried on. Pipes under ground, whether owned by individuals or corporations, are taxable as real estate in the township where such pipes are located.

DEDUCTIONS FOR DEBTS.

Any person or corporation in the State is entitled to deductions of bona fide indebtedness from the assessment of real and personal estate, providing a verified statement is made to the assessor of the debts owing and desired to be deducted, to whom owing, and where creditors reside, and also a statement of the total amount of real and personal property of the taxpayer, including mortgages held and other debts due and owing from solvent debtors, and also a statement showing when the indebtedness for which said deduction is claimed was incurred and a detailed list of the securities or property claimed to be exempt from taxation and of the dates of purchase of such securities or property, together with a declaration under oath that such indebtedness was not incurred or securities or property purchased with intent to escape taxation, but in good faith. Penalties are imposed for making a false statement and for transferring property to escape taxation. It is specially provided that no deduction shall be made from the taxable value of real estate on account of the indebtedness of the owner to any State or national bank, but such deductions may be made from personalty.

Mortgages on real or personal property are not assessable for taxation unless a deduction therefor shall have been claimed by the owner of the property and allowed by the local assessors, in which case they are assessable for taxation by such assessor, and the taxes are payable where the property covered by the mortgage is located.

The State board has adopted a rule requiring each assessor to notify assessors in other districts of deductions claimed for debts due from creditors therein.

By an act known as the "five counties act," it is made lawful for owners of land in the counties of Hudson, Essex, Union, Bergen, and Passaic, and in the cities of Trenton, New Brunswick, and Camden to enter into agreements with holders of mortgages on lands therein not to apply for any deductions, by reason of any mortgage, from the taxable value of such lands.

The counties and cities named in this act lie contiguous to New York City, and to this fact the act, one of the most curious statutes in American tax legislation, making one tax law for one part of a State and a different law for the remainder, is attributable. Prior to 1869 New Jersey had a uniform law for taxing mortgages, providing that the person giving a mortgage should pay the tax on it and deduct the tax from the principal or interest in settling with his creditor, the result of which was that mortgages falling due were foreclosed and new loans were not readily obtainable. In 1869 a statute was enacted exempting from taxation mortgages in the growing counties near New York City, for the relief of the inhabitants of those particular counties. This was modified by the "five counties act" above referred to, which is still in force, and which is said to operate to draw capital away from New York and into New Jersey.

Mortgages on lands exempt from taxation are taxable to the mortgagees at the place of their residence.

Deductions allowed from the assessed valuation of property in 1899 amounted to \$36,403,620, and the privilege is said to be grossly abused by taxpayers throughout the State.

BOARDS OF EQUALIZATION AND REVIEW.

The assessment is revised and equalized by township committees, borough councils, and the common councils of cities and villages, by county boards of equalization, commissioners of appeal, and the State board of taxation.

In 1891 the State board of taxation was established, for the equalization, revision, and enforcement of taxation. This board is composed of four members, no more than two members of which may belong to the same political party. They have power and authority to hear and determine the appeals of individuals, corporations, and municipalities from tax assessment, and to make such rules, orders, recommendations, and directions as they may deem necessary to secure the revision, equalization, and enforcement of taxation within the State. They are empowered to investigate the methods of local assessors, and may cause assessments to

be made under their direction, and by another assessor if the local assessor fails to comply with the law or the directions of the board. The members of such board receive an annual compensation of \$2,500 each, and are required to make an annual report and such recommendations as to laws and methods of taxation as they may deem advisable to the State legislature.

The efforts of this board have been efficient in obtaining improvement in assessments, in correcting errors, and in procuring improvement in legislation and administration of taxation laws generally.

As before stated, real and personal property generally is relieved from State taxation and assessed for local purposes only, except as to an apportioned State school tax. The assessment of corporate property for local purposes will be referred to under a subsequent head.

The assessed valuation of real estate in 1899 was \$755,276,846, and that of personal property \$141,456,551, 84.1 per cent of the whole valuation being real estate and 15.9 per cent personal property, the relative ratios varying in different counties from 92.6 per cent and 7.4 per cent, respectively, to 64.6 per cent and 35.3 per cent; the proportion of personalty assessed in agricultural counties being much greater than in the counties containing large cities.

While the separation of the State and local taxes removes the principal cause for rivalry among assessors for relief from State taxes through undervaluation, there is still an apportionment among local taxing districts of a State school tax, tending to some extent to induce competitive undervaluation, and through that and local causes the evils resulting from defective assessments by local assessors still exist in a marked degree, notwithstanding the removal of the cause mentioned.

The tax commission of 1897, in the discussion of the local system, says that the assessors do not comply with the constitutional mandate and make the assessments upon a standard of true value, but assess at less than true value; nor as a rule do they succeed in listing and taxing all the intangible property subject to taxation. This is noticeably so in cities, resulting in part from inherent difficulties, and in part from the fact that local public sentiment does not encourage and support the local assessor in resorting to such inquisitorial methods, so called, as seem necessary to unearth and reach all of this class of property.

Mr. James F. Rusling, one of the tax commission, in a special report, considers this subject more fully, and refers to the varieties and differences in the valuation and assessment of real estate in all parts of the State and to the escape of personal property from taxation almost altogether, particularly in the large cities, as shown by the evidence presented by the commission.

He says there are about 400 separate assessors and boards of assessors in the State, and nearly as many different rules of valuation and assessment. As officially reported, "each assessor seems to be a law unto himself." Their valuation in no two counties agree, nor scarcely in any two cities or townships of the same county. Referring to the fact that all assessors take an oath that they have valued and assessed "all property liable to taxation in their several cities and townships at its full and true value, at such price as it would sell for at a fair and bona fide sale by private contract," he says in practice they value real estate from 25 to 75 per cent of its true value, depending on the location and personal or political prejudices, and value different contiguous areas at different valuations, though of equal values really; and as to personal property they appear to make no earnest or honest effort to reach it anywhere except in agricultural districts, and even there very imperfectly. This practice has proceeded so far in New Jersey, he says, that it is now literally true that "about the only ones who now pay honest taxes on personal property are the estates of decedents, widows, orphans, idiots, and lunatics."

It is such inequalities and inequities, he says, "that sadden and exasperate our fellow-citizens and make the cry of 'equal taxation' an easy rallying cry for the demagogue and anarchist."

The State board, in 1891, when first appointed and upon a general survey of these conditions, take a philosophical view thereof and say that there is a total absence of uniformity and equality in the assessments of New Jersey, should not excite surprise so much as the fact that there is not more inequality and injustice by the 337 assessors, all acting independently of each other, and all, in fact, trying to impose on one another for the purpose of favoring their friends and localities.

While, as above stated, the efforts of the State tax board to "bring about a more equitable, just, and lawful state of affairs" have, in recent years, resulted in substantial improvement in assessments and administration of the tax laws generally, and they, as well as the tax commission, have recommended remedial legislation, the progress in this direction has been slow.

The defects in the general property assessment referred to have an important bearing upon the comparison of railroad taxation with that of general property, as shown in the investigation of the tax commission hereinafter referred to.

TAXATION OF CORPORATIONS.

The contributions of corporations in general, except railroad and canal companies, to the revenues of the State and municipal governments are received from:

First. A tax upon the privilege of incorporating.

Second. A license fee or franchise tax to the State.

Third. A local tax upon real estate and visible personal property by municipalities.

By the act of 1875 no tax of any kind was imposed upon the franchise or privilege of incorporating. No tax was laid upon the capital stock, and it was declared that the real and personal estate of all corporations thereafter found should be taxed the same as that of individuals. The purpose of the legislature was to treat the property and business of corporations in the same way as that of natural persons, and the only restrictions imposed were such as were thought necessary for the protection of stockholders and creditors.

INCORPORATION FEE.

Not until 1888 was any fee in the nature of a tax required to be paid on filing a certificate of incorporation, and no change in this fee has been made since then.

The payment required on filing such certificate is 20 cents for each \$1,000 of the total amount of capital stock authorized, but in no case less than \$25. A further fee of 20 cents per thousand of increase is charged upon increase of capital stock, and like fees upon consolidation where an increase of capital stock is authorized. The secretary of state received for fees and taxes from corporations under the general corporation act and supplement in 1899, \$726,133.61. (Controller's report, p. 15.)

From the 1st of January to the 1st of August, 1899, 1,336 corporations were organized under the laws of New Jersey, with an authorized capital of \$2,000,000,000.

FRANCHISE TAX.

In 1884 franchise taxes, in addition to the local taxes upon real and personal property, were first imposed upon corporations, and in this year it was provided that a certain annual tax by way of license for its franchises should be paid by all corporations, except certain corporations enjoying special privileges, which, at present, are railway, canal, banking and trust companies, savings banks, cemeteries, religious corporations, and charitable or educational associations; also manufacturing or mining companies, at least 50 per cent of whose capital stock issued and outstanding is invested in mining or manufacturing carried on within the State.

Two methods of determining such franchise tax are provided for:

First. By computing a per cent of gross receipts or gross earnings.

Second. A per cent of the capital stock.

The first method is applied to certain specified corporations doing business within the State, wherever chartered, and the second to corporations incorporated under the laws of the State, whether exercising their functions within or without the State.

TAX ON GROSS RECEIPTS OR EARNINGS.

Every telegraph, telephone, cable, or electric-light company not owned by a railroad company and otherwise taxed, every gas company, palace, parlor, or sleeping-car company incorporated under the laws of the State, every fire, marine, live-stock, casualty, or accident insurance company doing business in the State, except mutual fire-insurance companies, which do not issue policies on the stock plan, is required on or before the first Tuesday in May in each year to make a return to the State board of assessors, and to pay an annual franchise tax, as follows:

TELEGRAPH, TELEPHONE, CABLE, AND EXPRESS COMPANIES.

These are required to report to the State board of assessors the gross amount of their receipts from business done in the State for the year ending January 1 next

preceding, and are required to pay to the State an annual license fee of 2 per cent of such gross earnings.

In 1899, the gross receipts of such companies amounted to \$878,784.87 and the tax to \$17,575.67.

GAS AND ELECTRIC LIGHT COMPANIES.

These companies pay annually one-half of 1 per cent of the gross amount of receipts for light or power supplied within the State and 5 per cent of the dividends in excess of 4 per cent paid or declared by such companies. The tax amounted in 1899 to \$39,812.49.

PARLOR, PALACE, AND SLEEPING CAR COMPANIES.

These pay an annual franchise tax of 2 per cent of the gross amount of the receipts for fare or tolls for transportation of passengers within the State. In 1899 this tax amounted to \$1,220.

OIL OR PIPE LINE COMPANIES.

These pay a tax of eight-tenths of 1 per cent of the amount of their gross receipts from the transportation of oil or petroleum in the State, or if a part of their transportation line is without the State upon such proportion of the total gross receipts of such company as the length of line within the State bears to the total length of the line. In 1899 this tax amounted to \$10,758.20.

LIFE INSURANCE COMPANIES.

Life insurance companies incorporated under the laws of the State are required to pay a license and franchise tax of 1 per cent of the amount of their surplus on the 31st day of December each year, and in addition thereto an annual license fee or franchise tax of thirty-five one-hundredths of 1 per cent upon the total gross insurance premiums collected by such companies; but it is provided that any charges or taxes imposed by the State upon life insurance companies of other States shall be applied in rebate of such taxes. Such franchise tax in 1899, less the rebate of \$11,577.78, amounted to \$190,964.84.

Insurance companies other than life pay an annual franchise tax of 1 per cent of the gross amount of premiums received by such companies for insurance within the State upon property or persons within the State. In 1899 such tax amounted to \$7,452.09.

SURETY COMPANIES.

Surety companies pay an annual franchise tax of 2 per cent of the gross amount of premiums received by them. In 1899 such tax amounted to \$861.13.

FRANCHISE TAX ON CAPITAL STOCK.

All other corporations liable to a franchise tax on their capital stock as afore said, such as street railways, manufacturing companies, etc., pay to the State an annual license fee or franchise tax of one-tenth of 1 per cent on all amounts of capital stock issued and outstanding up to and including the sum of \$3,000,000; on all sums of capital stock issued and outstanding in excess of \$3,000,000 an annual franchise tax of one-twentieth of 1 per cent, and the further sum of \$50 per annum per \$1,000,000, or any part thereof, on all amounts of capital stock issued and outstanding in excess of \$5,000,000. Such tax in 1899 amounted to \$1,063,991.53.

This tax was imposed simply for the purpose of additional revenue, and the rates were made low in pursuance of the long-established policy of encouraging rather than burdening the aggregation of capital for the purpose of business. It is not regarded as a property tax, but as a franchise tax. Franchises are not taxable as property.

The tax is computed upon the basis of the capital stock issued and outstanding, not upon authorized capital stock, and it is held that stock is issued when the company has received and accepted subscriptions for the same, whether paid or not.

As long as the corporation exists it is liable for this franchise tax. It continues after a receiver has been appointed, and until the dissolution of the company.

Summary of franchise tax in 1899.

Character of business.	Num- ber.	Tax.
Gas and electric light companies.....	101	\$39,812.49
Life insurance companies incorporated in New Jersey.....	4	190,964.84
Insurance companies other than life.....	32	7,452.09
Surety companies.....	8	861.13
Oil or pipe line companies.....	9	10,753.20
Parlor, palace, or sleeping car companies.....	1	1,220.00
Telegraph, telephone, cable, and express companies.....	30	17,575.67
Companies taxed on capital stock.....	5,289	1,063,991.53
Total.....	5,469	1,882,635.96

SPECIAL FRANCHISE TAX.

In March, 1900, the legislature of New Jersey passed an act for the taxation of all the property and franchises of persons, copartnerships, associations, or corporations using or occupying public streets, highways, roads, or other public places, except municipal corporations, railroads, and canals, withdrawing such property from taxation under the general State franchise tax above referred to and now in force, and subjecting such property to the following franchise tax:

The respective assessors, or officers having like powers and duties to perform in each taxing district, are required each year to ascertain the value of such property located in, upon, or under any public street, highway, road, lane, or other public place in each taxing district, and the value of property not so located; when so ascertained, all such property shall be assessed and taxed at local rates as now provided by law.

The local assessors are required annually to make certified return in writing of the valuation of all property assessed under the provisions of this act, which is located in, upon, or under any street, highway, road, lane, or other public place in such taxing district, together with the names of the owners and those operating the same, and file it in the office of the State board of assessors.

All persons, copartnerships, associations, or corporations subject to taxation under this act are required to return to the State board of assessors a statement showing the gross receipts of their business in New Jersey for the year ending December 31 next preceding. Any oil or pipe line, having part of its transportation in this State and part outside of the State, is required to make a report showing its gross receipts for transportation on its whole line, together with a statement of the length of its whole line and the length of its line in New Jersey, along any street, highway, road, lane, or other public place, and the franchise tax of such company for business done in this State is upon such proportion of its gross receipts as the length of its line in this State bears to the length of its whole line. Such statements are to be verified, and a penalty is attached for failure or neglect to make such statement.

An annual franchise tax of 2 per cent on the annual gross receipts as aforesaid shall be assessed upon all persons, copartnerships, associations, or corporations taxable under this act. This franchise tax is to be apportioned by the State board of assessors to the various taxing districts in proportion to the value of the property located in, upon, or under any public street, highway, road, lane, or public place therein, as shown by the statement so filed with the State board, and the taxes so apportioned are collectable in the local districts.

The franchise taxes imposed by this act are to be in lieu of all other franchise taxes now assessed against the persons, copartnerships, associations, or corporations subject to the provisions of this act and their property, and the act is not to apply to any corporation which has not hitherto or may not hereafter exercise any municipal franchise.

The real and personal property of such persons and corporations will be assessable locally as other property.

The provisions of this act took effect January 1, 1901.

LOCAL TAXATION OF CORPORATIONS.

All corporations excepting railway, turnpike, insurance, canal, or banking corporations, savings banks, cemeteries, church, or purely charitable or educational associations are assessed on their real and personal property for purposes of taxation the same as natural persons, and are permitted deductions for debt the same as individuals.

The stock of corporations, except banks, is not assessable in the hands of the individual holders, nor their bonds, except when deductions for the same have been claimed and allowed to the corporation. The property is taxable to the company, and the capital stock as such is not assessed, only such property as actually within the State being taxed in this way.

It is the law and universal practice, as advised by the State board of taxation to the various assessors of the State, to list and assess corporate property, both real and personal, in the taxing district where located or found. It is said to be the common practice of the most capable and experienced assessors to measure the true value of such property for local assessment by the cost of reproduction, making allowance for the natural wear and tear and depreciation from use. The value is thus determined by the estimate and judgment of the local assessor, "each being a law unto himself." Such property is, of course, taxed at local rates as other property.

Manufactories and mills are said to be, as a rule, favored by the assessors in cities, while assessed higher in the country districts; it being the disposition of the people in cities to favor this class of property—first, because they employ a large amount of labor, and, second, because much of the value of a manufacturing plant is unstable, depending upon the success of the enterprise.

The real and personal property of street railways, telephone, telegraph, electric, gas, and water companies is said by the State board to be systematically assessed in taxing districts where such companies operate, the basis of computation of value being as a rule the cost of reproduction less a percentage allowed for depreciation by the assessor. Pipes underground are assessed as real estate in the place where located.

Insurance companies are assessed and taxed locally at the full amount of their capital stock paid in and accumulated surplus, after deducting the value of property in which the stock and surplus are invested, which is by law not taxable, and real estate which has been separately assessed to such company.

Savings banks without capital stock are assessed and taxed for the full amount of their property and valuable assets, without any deductions for debts and liabilities. Those having capital stock are taxed the same as insurance companies above set forth.

Safe deposit, guarantee, and trust companies are assessed and taxed locally at the full amount of their capital stock paid in and accumulated surplus, after deducting property in which such stock and surplus is invested which is not taxable, and real estate separately assessed to such companies is not assessable in the hands of its holders.

BANKS.

The shares of stock in National and State banks in New Jersey are assessed to the owners thereof in the place where they reside in case of residents, and in the place where the bank is located in case of nonresident shareholders. In the latter case the tax assessed is a lien upon the stock, which may be levied upon and sold for said tax; and it is made the duty of the bank upon demand, for that purpose made by the collector, to pay the amount of tax assessed against such nonresident shareholders, and to retain the amount so paid out of the dividends, and the bank is given an express lien upon such stock for any taxes paid thereon.

No obligation is imposed upon banks with respect to the payment or collection of taxes on the shares of resident holders, and there is considerable confusion and lack of uniformity in the assessing of banks and bank stock throughout the State.

It is made the duty of officers of banks, when applied to by the assessor, to give him a statement under oath of the names of the stockholders and of the amount of capital stock, surplus, and other property and assets; and the assessor is authorized to take such other means as may be in his power to ascertain the true amount for which stockholders should be assessed.

No means are provided by law, however, for notifying assessors throughout the State of the stock of residents in their respective districts in banks outside said districts and taxable therein.

In the absence of legislative provisions in that regard, the State board has tried to secure uniformity of taxation of shares of resident holders by supplying local assessors with a list of names and addresses of the taxing officers throughout the State, and to secure an interchange of information with respect to resident stockholders and the taxable value of their stock, each assessor being requested to procure a list of stockholders in banks in his district and notify other assessors in the State where any stockholders may reside of the amount and value of their shares. The failure of assessors to strictly comply with this rule results in great

lack of uniformity in the assessment of bank shares. It has been held that the value per share at which bank stock is to be assessed is properly determined by dividing the capital stock, surplus fund, and undivided profits of a bank, as shown by statements to the comptroller of the State, by the number of shares, but there is no central authority to determine such value and assess it uniformly throughout the State.

A recent statute also provides that all real estate of any bank shall be assessed to the bank where such real estate is located in the same manner as real estate of individuals, and the amount of such assessment deducted from the assets of said bank in estimating the assessable value of the shares of stock. The shares of resident stockholders are taxed at local rates, and the stock of a bank is obviously taxed at as many different rates as there are shares in different taxing districts.

There is no direct State tax levied upon the property of banks or upon bank shares.

It is claimed on the one hand that much of this class of property escapes taxation entirely, and on the other, complaint is made that in many taxing districts it is taxed more excessively and at a higher percentage than other classes of personal property.

RAILROAD AND CANAL COMPANIES.

The system of taxation of railroad and canal companies may be described briefly as a property tax by the State, through State assessors or officers, with a distribution of a part of the tax by the State to the local taxing districts for the support and maintenance of the local and municipal governments.

Property used for railroad and canal purposes is segregated from the property owned by other corporations and individuals, and is valued, assessed, and taxed as a class by itself.

The property of railroad and canal companies not used for railroad and canal purposes is assessed and taxed by the same assessors, in the same manner, and at the same rate as the taxable property of other property owners in the same municipal division or taxing district. The property of railroad and canal companies used for railroad and canal purposes is assessed by the State board of assessors, which meets annually for that purpose, and is required in such valuation to ascertain—

First. The length and value of the main stem of each railroad and of the waterway of each canal, which is held to include the roadbed, not exceeding 100 feet in width, with its rails and sleepers, and depot buildings used for passengers connected therewith, and the length of such main stem and waterway in each taxing district, whether city, village, township, or borough; the above being designated as "first-class property" or "main stem."

Second. The value of the other real estate used for railroad or canal purposes in each taxing district in this State, including the roadbed (other than main stem) waterways, reservoirs, tracks, buildings, waterworks, riparian rights, etc., usually designated as "second-class" property.

Third. The value of all the tangible personal property of each railroad and canal company, which includes all rolling stock, locomotives, cars, ferryboats, all machinery, and other tangible personal property of railroad or canal companies; also the locomotives and cars not belonging to such railroad company, but built for its uses and actually used in the State or under its control in the State by sleeping car or other companies.

Fourth. The value of remaining property, including franchises.

The State board of assessors may require a complete statement and description of the property of such companies in the various taxing districts to be furnished by the assessors of such districts, showing the property used and that not used for railroad and canal purposes.

Every railroad and canal company is also required to file annually with such board a sworn statement, showing the nature and extent of its property in each taxing district as it existed on the 1st day of January last past, and showing in detail its real estate, total length of road, including branch and leased lines, length within the State, length of double or side tracks, number and value of all buildings and structures, rolling stock, and tangible personal property; also a statement showing the amount of capital stock authorized and the number of shares, amount of capital stock paid up, the market value, or if no market value, the actual value of the shares and the total amount, and the details and particulars of all indebtedness.

Where the property of any railroad or canal company is leased to or operated by any other corporation, foreign or domestic, such property is assessed to the

lessor, and if the lessee or operating company, being a foreign corporation, has property other than that derived from the leasing company, it is taxed upon such property as any domestic company. Any tangible personal property of such foreign company, if used but part of the time within the State, is assessed such proportionate part of its value as the time for which it is used bears to the whole year.

The same deductions for debts are allowed as in the case of private individuals.

Upon the completion of this valuation and assessment the State board proceeds to compute the tax upon the entire assessed valuation. Each company pays to the State a tax at the rate of one-half of 1 per cent annually upon each dollar of its entire valuation—i. e., on all property included in the above 4 classes or subdivisions. Until the year 1897 all this tax was paid into the State treasury, and was used exclusively by the State for State purposes. In 1895 this tax amounted to \$1,103,529, levied upon a valuation of railroad and canal property of \$220,705,822.

By an act of 1897 the amount of such tax which is assessed to the property described in subdivision 2, and designated second-class property, is required to be paid over to the taxing district through which such railroads or canals run, giving to each district the amount of taxes assessed to the property of each railroad or canal company therein.

Besides this tax of one-half of 1 per cent of their valuation, such companies are required to pay to the State a tax at the local rate as fixed by the local taxing district in which such property is located, for county and municipal purposes, on the property included in subdivision 2, provided that such tax shall in no case exceed 1 per cent of the valuation.

The tax is paid to the State treasurer, and the State controller pays the amount of such tax, together with the respective shares of such districts in the tax levied at one-half of 1 per cent aforesaid, to the various county collectors or city treasurers.

In 1895 this local tax amounted to \$410,882.18 upon a valuation of \$41,120,216. The total tax paid in 1895 by railroad and canal companies amounted to \$1,514,411.24.

In 1899 the total valuation amounted to \$222,216,584, the State tax (one-half of 1 per cent) on first-class property retained being \$907,636.22, and the whole tax on second-class property \$610,192.96, made up of the one-half of 1 per cent tax (\$203,446.45) and the tax at local rates (\$406,746.51). The total tax paid by railroad and canal companies in 1899 was \$1,517,829.19.

The State thus receives from railroad and canal companies a tax of one-half of 1 per cent upon the total assessed valuation, after deducting the value of the second-class property described in subdivision 2. The local taxing districts receive a tax of $1\frac{1}{2}$ per cent upon the assessed valuation of such second-class property, 1 per cent being the local rate.

It seems to be generally conceded that under this system such property is assessed at its full cash value, but whether this class of property pays a proportionate amount of taxes as compared with a like amount in the hands of individuals or corporations subject to the general property tax is a question about which there has been considerable contention.

It is obvious that if it be assumed that the constitutional and statutory requirements as to valuation are carried out by assessors, and all property assessed at full values under both systems, the taxation of one as compared with the other is not uniform and equal, the rate of taxation upon the one being one-half of 1 per cent on the whole and 1 per cent additional on a portion, while the "average" rate upon the other in the various taxing districts in the State was, in 1895, according to the report of the State board of taxation, \$17.20 per \$1,000 of valuation.

It is conceded, however, that under the general property tax substantially all assessed property is greatly undervalued, while a large part of the property escapes entirely, which facts must be taken into consideration in attempting a comparison.

The tax commission of New Jersey, in 1897, undertook to make such a comparison of the taxes paid by railroads and canals with the taxes paid by individuals and other corporations. Evidence and arguments pro and con were made and submitted, and schedules were made under different methods of comparison. One set of schedules showed that railroads derived an advantage in taxes and the other that they were paying in excess of their just share of taxes.

The commission in its report says that the varying schedules illustrate "how impracticable it is to compare two things which are essentially dissimilar; how difficult and unsatisfactory it is to make a correct and just comparison of two systems of taxation based upon dissimilar principles. Such comparisons may be useful in a general way and for the most general purposes, but they are unsuited to base tax legislation upon, without a principle, which should always be the pri-

mary consideration, and the figures secondary. And whether the one set of figures is mathematically correct, or approximately so, or the other, is of small moment in the view which the commission takes of this branch of the subject, viz., the act of 1884, as amended 1888, (the present system of taxing railroads), should not be disturbed, except as indicated."

While this does not, in express terms, state that such property is justly and equitably taxed as compared with other property, that is the logical inference to be drawn from the positive approval of the existing system, and failure to recommend any change in the rates of taxation of such property.

One of the commissioners, Mr. Jas. F. Rusling, who joined in the report of the commission, in a special report discusses the subject of comparison more fully, and says:

"In effect this system yields a tax of one-half of 1 per cent on all railroad property (except what is not used for railroad purposes), for the use and benefit of the State, and amounted in 1895 to \$1,514,411.24. It is true this taxes railroad property only one-half of 1 per cent in part and only 1½ per cent as to the rest. But the listing of railroad property has been made so thorough and complete, and the valuations fixed so high and true by the State board of assessors that, so far as appeared in evidence before the commission, this class of property seems now to pay its just and full share of taxes in New Jersey. Indeed, the State board of assessors in their annual report for 1894, page 7, declare: 'It can be proven by facts and figures, beyond any question, that the railroad corporations (of New Jersey) are paying to-day more taxes in proportion to their ownings than are the individual taxpayers of the State,' and in their report for 1896 (p. 6) they reiterate this opinion. And, besides, they pay their taxes regularly every year to the last dollar assessed against them, without any deduction for debts or otherwise, and without costing the State a dollar to collect them. Let us then be fair to our railroads. They constitute a large item in the tax ratables of the State, and from the official reports, exhibits, and other evidence, produced before the commission, it is but just to say they do not appear to be in fault on this line."

INHERITANCE TAX.

A tax for the use of the State of \$5 on every \$100 of value of all estates valued over \$500, which shall pass by will or by the intestate laws of New Jersey, except legacies or estates passing to certain designated relatives or certain charitable bequests, is imposed by law. The amount received from this source in 1899 amounted to \$85,520.68.

LIQUOR LICENSES.

The estate has no interest in the amount received from liquor licenses. These are levied by the various municipalities and collected by them for local uses.

PENNSYLVANIA.

A distinguishing feature of the taxation system of this State is the separation of State and local taxation.

The work of assessing State taxes is put into the hands of a single tribunal, while local assessments are confined strictly to local purposes. Property, real and personal, liable to local taxation is not taxed for State purposes, and vice versa.

Taxes for county, township, and municipal purposes are assessed upon real estate, horses and cattle over 4 years of age, occupations, professions, and posts of profit. Real estate so taxed does not include that essential to the operation of the quasi-public corporations, that being included in the State taxation.

All this property is taxable for local purposes only, and assessed by local assessors who have nothing to do with State taxes. All other personal property is assessed by the State board, but three-fourths of the State tax on personal property is apportioned to the several counties in reduction of the local taxes. Revenue derived from retail liquor licenses is also given up to counties, townships, and municipalities.

The taxes for State purposes are almost wholly paid by corporations, leaving individuals subject to taxation for local purposes only, except that the mortgages, bonds, and other classes of personal property taxable under State laws held by them pay a State tax, but three-fourths of this tax is returned to the counties.

Corporations pay no local tax except upon real estate (and in case of railroads and other quasi-public corporations, not upon that), and except upon horses and cattle owned by them.

The property of corporations is in the main taxed by the State board for State purposes. The real estate of manufacturing companies is subjected to local taxation as other real estate in the districts where the same is located, but the capital stock of such companies engaged in manufacturing business is exempt from taxation for all purposes by statute. This exemption is by way of encouragement to manufacturing investments.

STATE TAXES.

The revenues of the State are collected by two distinct methods and divided into two classes:

First. Taxes paid directly or through other State officers to the State treasurer.

Second. Taxes collected by county officers, and by them paid to the State treasurer.

BONUS ON CHARTERS.

One of the sources of direct revenue for State purposes is a bonus on charters of corporations, such a bonus being defined by the courts to be the price paid the Commonwealth by a corporation for the privileges conferred on such corporation by its charter. It is not regarded as a tax in a legal sense, although for our purpose it may be considered as such, and it does not relieve any corporation from regular taxation.

The bonus is fixed by law at the rate of one-third of 1 per cent of the amount of authorized capital stock, and a like amount on authorized subsequent increases of stock on one class of corporations, payable before the charter's issue, and one-fourth of 1 per cent on another class, payable one-eighth of 1 per cent before the charter's issue, and a like amount at the expiration of one year from the date of the charter.

The amount realized by the State from this source in 1898 was as follows:

From incorporated State banks	\$384. 50
From trust companies	7, 333. 84
From corporations and associations	438, 579. 71
Total	446, 897. 55

TAX UPON CAPITAL STOCK.

This State derives about one-half of its public revenue from the taxation of corporations. All such taxes are assessed and collected by State officers. The principal tax upon corporations is that upon capital stock, so called, to which all corporations having capital stock, except banks, savings institutions, and foreign insurance companies, are subject.

The companies subject to such tax include every corporation having capital stock, associations and limited partnerships organized or incorporated by or under the laws of the State or incorporated or organized by or under the laws of any other State or Territory, by the United States, or by any foreign government and doing business in and liable to taxation within Pennsylvania or having capital or property employed within the State, with the exceptions above named.

Formerly this tax was assessed on the capital stock on the basis of the dividends paid, but under an act passed in 1891, which provides increased revenue for the purpose of relieving the burden of local taxation and for greater uniformity, the taxing of dividends based on assessment of capital stock was abandoned, and provision was made for the assessment of the capital stock of all corporations upon its true value.

In the assessment of capital stock of corporations by State officers, the value of such capital stock is based in the judgment and discretion of such officers upon a wide range of inquiry and investigation, and such assessment is made to include the actual value of all property, franchises, and everything of value they possess.

Under the decisions of the courts of the State and the practice of State assessing officers, the value of capital stock of corporations is based upon all the property, assets, franchises, and earning capacity of such corporations, without regard to their debts.

As a factor in determining such valuations, sworn detailed reports are required annually from officers of corporations, except banks, savings institutions, and foreign insurance companies, showing:

- (1) The total authorized capital stock.
- (2) Total authorized number of shares.
- (3) Number of shares of stock issued.
- (4) Par value of each share.
- (5) Amount paid into the treasury on each share.
- (6) Amount of capital stock paid in.
- (7) Amount of capital stock on which dividend was declared.
- (8) Date of each dividend declared during the year.
- (9) Rate per cent of each dividend declared.
- (10) Amount of each dividend during previous year.
- (11) Gross earnings during the year.
- (12) Net earnings during the year.
- (15) Amount of surplus.
- (16) Amount of profit added to sinking fund.
- (17) Highest price of sales of stock between the 1st and 15th days of November of the year.
- (18) Highest price of sales of stock during the previous year.
- (19) Average price of sales of stock during the year, and also the sworn estimate and appraisement of two officers of each corporation of the capital stock at its actual value in cash, not less than the average price which said stock sold for during the previous year, and not less than the price or value indicated or measured by net earnings, or by the amount of profits by dividends or carried into surplus or sinking fund.

These reports are not conclusive upon the State assessing officers, who ascertain the value of this capital stock not only from the extensive data furnished in these sworn reports, but from information obtained from other sources.

This method of valuation takes into consideration, as we have stated, not only the franchises or rights of business, but the success of business, good will, future prospects, administrative efficiency, and everything that goes to make up the value of capital stock.

A distinguished judge of that State recently said, "There is a tendency in Pennsylvania to settle down upon the earning capacity as the true subject of taxation." However this may be, it seems clear that everything going to make up the earning capacity of corporations is practically taken into consideration in determining the assessment of their capital stock.

It will be observed that the law requires that the valuation of capital stock shall in no case be less than the average price of sales of shares. The actual value may be much greater, but in no case may it be less.



The supreme court, construing the act of the legislature governing the valuation of capital stock for taxation in the case of *Commonwealth v. N. Y. P. & O. R. R.* (188 Penn. State Rep., p. 169), held the declared purpose to be to tax the capital stock by ascertaining its value in view of the tangible assets of corporations, what was owing to them, the value of their franchises, and the rights and privileges they possessed under their grants.

The question of the actual value in cash of the capital stock is a question of fact which must be determined by considering the value of the company's tangible property and assets of every kind, including its bonds, mortgages, and money at interest, and its franchises and privileges; and the amount of the incumbrance on its property and franchises is also a relevant fact to be considered, but is not to be specifically deducted from the valuation so ascertained and determined.

Foreign corporations doing business in Pennsylvania are taxable like domestic corporations, on so much of their capital as is invested in the State.

The fact that a foreign transportation company running its cars into, through, and out of the State, also operates them in other States, does not exempt the company from taxes upon the capital invested in cars in Pennsylvania.

Palace car companies whose cars run into Pennsylvania and other States are taxable on the proportion which the total number of miles traveled in Pennsylvania by their cars bears to the miles traveled by all their cars in all States.

Railroad companies whose lines extend from Pennsylvania into other States are taxable on the proportion of their capital stock which the mileage of the main track in Pennsylvania bears to the total mileage of the company.

Telegraph companies doing business in many States, where the like value of the tangible property representing capital within and without the State can be accurately ascertained, are taxed on the proportion of their entire capital stock which the length of their lines within the State bears to the total length of all their lines.

The capital stock of corporations representing tangible property permanently located outside the State of Pennsylvania is not taxable.

By the payment of the tax on capital stock, corporations do not relieve themselves from any local taxation to which they would otherwise be subject.

Corporations, except quasi-public ones, are also taxed locally upon real estate, and the value of such real estate is also included in the capital stock valuation. Quasi-public corporations are taxable locally on real estate not necessary to the operation of their lines.

It has been held that the tax on capital stock being a tax for State purposes only, local taxation upon the property in which the capital stock of a company is invested does not constitute double taxation.

An appeal from the tax assessment of the State officers may be taken by any corporation in the State to the court of common pleas of Dauphin county, where the capital of the State is located.

Blank forms of reports of capital stock for the use of different classes of corporations are prepared by State officers.

Corporations which pay a tax upon their capital stock, or which are expressly relieved from such payment as in the case of manufacturing companies, thus relieve their shares of stock from taxation in the hands of the holders thereof, and are not required to make any report nor pay any further tax on the mortgages, bonds, and other securities held by them in their own right.

The rate of taxation upon capital stock is fixed by law, being a uniform rate of 5 mills upon each dollar of the actual value of the stock.

The amount actually collected from this source during the year 1897 upon a valuation of \$765,518,672 was \$3,827,593.86, or about 29 per cent of the entire revenue of the Commonwealth.

In 1899 the capital stock tax was \$4,575,511.

TAX ON LOANS OF PUBLIC AND PRIVATE CORPORATIONS.

The law also imposes a tax on corporate loans, requiring the payment of 4 mills on the dollar on all investments by residents of the State in the bonds and other obligations of corporations, public or private, for profit, except banks, savings institutions, and foreign insurance companies.

Instead of depending upon the holders of such obligations returning them to the assessors for taxation, the treasurer of each corporation is made the agent of the State for the collection of this tax, and is required to deduct it from the interest accruing on such obligations and pay it to the State, the corporation, however, being responsible for its payment. These obligations of domestic owners are then exempt from taxation in the hands of the owner. Obligations held by non-residents of the State in their own right are not taxable.

The amount of this tax in 1897 on a valuation of \$219,994,522 was \$979,978, or 6.08 per cent of the entire revenue of the State. The amount of this tax in 1898 was \$866,316.88, and in 1899, \$1,149,409.

This method of taxation has been declared to be constitutional by State and Federal courts. It is practically a tax upon individual property in the hands of the individual taxpayer.

The auditor of the State in his report of 1897 says; "This method of collecting the tax upon the obligations of corporations has been successful, and has secured a tax upon a class of securities difficult to reach through the local assessors.

TAX ON GROSS RECEIPTS OF CORPORATIONS.

A tax of 8 mills on the dollar is imposed upon the gross receipts of railroad, street passenger railway, express, telegraph, telephone, and electric-light companies doing business in the State, from business done wholly within the State; the act thus limiting gross receipts being prepared with a view to conformity with the interstate-commerce clause of the Constitution of the United States.

The treasurer of each corporation is required to furnish the auditor-general of the State with a statement under oath of the amount of gross receipts of such company derived from all sources, and of gross receipts of business done wholly within the State.

It is interesting to note the method by which the gross receipts tax of companies doing business in this and other States is apportioned. In the case of the palace car companies, for instance, the gross receipts are taxed as follows: The company reports all the moneys received for transportation between places in Pennsylvania and other places in the same State. It returns separately, or in different schedules, the receipts of this nature earned by cars running wholly within the State, and in another schedule such receipts as are earned by cars whose trips are not confined to the State, but are continued beyond the borders of Pennsylvania, or, beginning without the State, pass through or terminate in it. The tax on gross receipts, however, is settled upon the full amount of receipts earned wholly in Pennsylvania, so returned, whether earned by cars running only within the State or by those engaged in interstate commerce.

Mr. Frank M. Eastman, from whose excellent work on Taxation in Pennsylvania we obtained much information relating to taxation in this State, says: "So long as the traffic is carried on within the State, it makes no difference whether the cars earning the receipts are engaged in interstate commerce or run only within the State. The fact that a car runs between States does not make so much of the traffic carried on by it, as is limited to the territory of a given State, interstate traffic."

The tax upon gross receipts of corporations for 1896, such gross receipts amounting to \$89,188,400, yielded a revenue of \$718,878.12, being 5½ per cent of the total revenue of the State for that year.

The receipts from this source for 1895, 1896, and 1897 were collected from the following classes of corporations:

Class of corporations.	1895.	1896.	1897.
Railroads (steam)	\$402,910.95	\$450,473.61	\$404,429.80
Railways (passenger)	112,797.46	149,349.20	158,216.84
Transportation (miscellaneous)	27,388.84	47,776.08	89,938.29
Telegraph and telephone	18,856.51	22,921.80	21,689.67
Electric light	84,254.70	42,852.43	49,504.43
Total	591,208.06	713,373.12	673,758.53

The receipts for 1898 were \$691,522.99, and in 1899 \$748,214.

This tax has been held by the courts to be constitutional upon so much of the gross receipts as are derived from business wholly within the State.

TAX ON PREMIUMS OF INSURANCE COMPANIES.

This tax is divided into two classes: First, tax on foreign insurance companies; second, tax on gross premiums of domestic insurance companies having capital stock.

First. The tax on foreign companies.

These companies are required to obtain from the commissioner of insurance a certificate of authority, showing that the company or association is authorized

to transact business in the State; and as a condition of the annual renewal thereof, the duty is imposed upon every such company or association to make report to the commissioner in the month of January in each year, under oath of the president or secretary thereof, showing the entire amount of premiums of every character and description received by said company in Pennsylvania during the year or fraction of the year ending with the 31st day of December preceding, whether said premiums were received in the form of money, credits, or any other substitute for money, and to pay into the State treasury a tax of 8 per cent upon said premiums. The commissioner has no power to grant a renewal to such company or association until the tax is paid into the State treasury. This tax upon foreign insurance companies has been held by the courts in Pennsylvania to be constitutional.

The tax is paid directly to the commissioner of insurance, no settlement therefor being made by the accounting officers. The commissioner ascertains whether the amount paid corresponds with the premiums reported, and if so, pays the money into the State treasury.

The law provides that one-half of the amount of this tax shall be paid by the State treasurer to the treasurers of the several cities and boroughs of the Commonwealth.

The amount collected from these companies was:

1895.....	\$518,616.19
1896.....	548,442.18
1897.....	575,829.65
1898.....	620,922.08
1899.....	646,775.00

Second. The tax on gross premiums of domestic insurance companies having capital stock.

A tax of 8 mills on the dollar is imposed, in addition to the tax on capital stock, upon the gross premiums and assessments, received from business transacted within the State, of all domestic insurance companies except those doing business on the mutual plan without any capital stock or accumulated reserve, and except purely mutual beneficial associations.

This tax is based upon semiannual reports of these companies, and is required to be paid on the last days of July and January in each year. The revenue from this source was:

1895.....	\$43,855.68
1896.....	54,751.19
1897.....	54,802.18
1899.....	61,882.00

TAX ON BANK STOCK.

A tax of 4 mills on the dollar is imposed upon the actual value of the shares of stock of every bank or savings institution incorporated under the laws of Pennsylvania or of the United States and represented in Pennsylvania.

Each bank having capital stock is required to file with the auditor-general an annual report, under oath of one of its officers, showing—

(1) The full number of shares of capital stock subscribed for or issued by such bank or savings institution, and

(2) The actual value thereof; and the actual value of the shares is to be ascertained by adding together the amount of

(a) Capital stock paid in, and

(b) The surplus and undivided profits.

The tax is assessed by the auditor-general on the actual value of these shares so ascertained and a copy of the assessment or settlement is transmitted to the bank, whose duty it is to post it in a conspicuous place in the bank, so as to give notice of the valuation to the stockholders.

The bank may then within forty days from the receipt of a copy of such settlement either collect the tax from its shareholders or pay it out of the general fund.

The auditor-general has the power, and it is his duty under the law, in case he shall not be satisfied with the correctness of the report as made by any bank or savings institution, to summon the officers before him for examination and require them to bring with them the books of their bank; and he may take further evidence to satisfy himself as to the correctness of the report.

It is further provided that in case any bank or savings institution having capital stock shall collect this tax from the shareholders, and pay it into the State treasury on or before the first day of March each year, the shares and so much of the capital or investment of such bank or savings institution as shall have been invested in real estate shall be exempt from local taxation, and such bank or savings institution shall not be required to make any report to the local assessors or county commissioners of personal property owned by it in its own right and shall not be required to pay any tax thereon. While the law imposing this tax is not very clear upon the subject, it is understood to relieve shares of stock from taxation in the hands of the owners thereof.

It is specially provided that any bank may elect in lieu of the foregoing method to collect annually from its shareholders a tax of 10 mills upon the par value of all its shares subscribed for or issued, and pay the same to the State treasury. There are, however, but few banks in the State that can profitably take this option, so that the 4-mill tax is practically the bank tax of the State.

Banks which do not collect and pay the tax on or before March 1 of each year as provided are subject to taxation on the personal property held by them, except in the case of national banks.

The taxes from this source in 1897 amounted to \$595,684, and in 1899 to \$548,800.

Trust companies are required to pay the regular capital stock tax on the actual value of their property, franchises, etc., the rate of taxation being 5 mills on the dollar, and the real estate being taxed for local purposes. They also pay the tax of 4 mills upon loans.

Taxes paid by trust companies in 1898 amounted to \$869,645.56. The trust companies, it will be observed, are taxed at a higher rate than banks, the reason probably being that they enjoy more valuable franchises and privileges than banks, doing banking business to all intents and purposes, and in addition having the right to do trust business.

TAX ON NET EARNINGS.

Private bankers or brokers, savings institutions, and corporations not subject to a tax on their capital stock or gross premiums, are subject to a tax of 8 per cent on their net earnings or income.

BUILDING AND LOAN ASSOCIATIONS.

Building and loan associations have been exempted from taxation, but are now taxed by an act of 1897, providing that upon all "full-paid, prepaid, or fully matured" stock in any building and loan association incorporated under the laws of Pennsylvania or under the laws of any other State, upon which annual, semi-annual, quarterly, or monthly cash dividends or interest shall be paid, there shall be a State tax equal to that required to be paid upon moneys at interest by the tax laws of the State, viz., 4 mills on the dollar; and such associations are required to make detailed annual statements to the auditor-general.

EXCISE TAX UPON EXPRESS COMPANIES.

In July, 1897, an act was passed providing for an annual excise tax, so called, upon the corporations or other associations, partnerships, or individuals engaged in the express business. They are required to pay to the State treasurer for the use of the State an annual excise tax for the privilege of exercising their franchises in Pennsylvania. The amount of the tax is ascertained as follows: Each company, firm, or person so taxed is required to make under oath to the auditor-general an annual statement of the amount of its express receipts—that is to say, the amount of total receipts derived by it from carrying on the express business for the previous year, with a statement of the total length of lines of rail and water routes over which it was doing business during the year. The gross amount so returned to the auditor-general is divided by the number of miles of lines to ascertain the average gross receipts per mile.

When average receipts are \$100 a mile or less the rate is 1 per cent; when the receipts exceed \$100 and do not exceed \$150 the rate is 2 per cent, and so on, the rate of the tax increasing 1 per cent for each \$50 of average receipts per mile or fraction thereof, but never exceeding 5 per cent. When the route or routes over which the express business is conducted lie partly within and partly without the State, the gross express receipts over the entire line or system within and without the State are divided by the total number of miles operated to obtain the

average gross receipts per mile, and the gross express receipts in Pennsylvania are taken to be the average gross express receipts per mile multiplied by the number of miles operated within the State.

These companies are also subject to the tax on capital stock, on loans, and on gross receipts heretofore mentioned.

RAILROAD TAXATION.

The railroads of the State paid taxes for State purposes in 1898 as follows:

Tax on capital stock (5 mills)	\$974, 688. 64
Tax on loans (4 mills)	451, 617. 06
Tax on gross receipts (8 mills)	428, 709. 04
Total	1, 850, 014. 74

As has been observed, they pay comparatively little in the way of local taxes. All their property is exempt from local taxation except such as is not essential to the legitimate operation of their lines. Such property, however, is subject to local taxation, and has been so declared by the supreme court of the State.

In some of the counties they are required to pay local taxes on that portion of their real estate not essential to the operation of their lines, and in 1898 they paid taxes on such property amounting to \$757,593.48, the larger portion of which was paid in the counties of Philadelphia and Allegheny.

For the year 1899 railroads paid a tax of \$1,833,184 on capital stock valued at \$866,636,990, or \$36,663 a mile, and a gross receipts tax of \$451,618 upon a total of \$56,451,640 of gross receipts derived from traffic wholly within the State, making a total tax of \$2,284,797 paid directly to the State.

In addition, railroads paid to local communities for 1899 taxes amounting to \$728,714.

The total amount of taxes paid in 1899, both State and local, was \$3,018,511.

There is also collected by the State through railroad corporations a tax of 4 mills upon the par value of their loans or interest-bearing indebtedness. The act taxing all personal property, as above set forth, makes a class of corporate loans, bonds, mortgages, or other interest-bearing indebtedness, and imposes upon the treasurer of the company the duty of deducting the tax of 4 mills upon the nominal or par value from the interest paid to taxable residents of Pennsylvania, and returning the amount so collected directly to the State treasurer. Nearly all mortgages securing such loans contain covenants providing for the payment of interest coupons free and clear of all State taxes, the company thus assuming to pay the tax of the bondholder. The amount collected from this source in 1899 from railroads was \$515,301, or a 4-mill tax upon \$128,825,000 of corporate loans.

Taxes paid by transportation and transmission companies, 1898.

Basis of taxation.	Railways (passenger, street, elec- tric, etc.).	Telegraph and tele- phone com- panies.	Transporta- tion com- panies (mis- cellaneous), including express com- panies.	Light, heat, and power companies.
Tax on capital stock (5 mills)	\$676, 084. 93	\$19, 121. 91	\$298, 386. 25	\$70, 841. 21
Tax on loans (4 mills)	74, 668. 77	460. 49	89, 196. 45	13, 990. 09
Tax on gross receipts (8 mills)	163, 591. 49	24, 586. 39	86, 246. 98	42, 283. 37
Bonus on charters	20, 556. 88	9, 236. 37	128, 806. 66	24, 138. 44
	984, 852. 07	53, 405. 16	497, 636. 34	151, 258. 11

The local taxes collected on real estate of corporations other than railroads in 1898 amounted to \$2,501,423.60.

STATE TAX FROM COUNTIES.

The remainder of the State revenues of Pennsylvania are assessed and collected by county officers and by them paid to State officers, the auditor-general having supervisory control over the manner of such assessment and collection. This tax is assessed upon the basis of sworn reports required to be made by taxables annually, and upon such further information of record or otherwise as the assessors may obtain.

The rate of taxation for State purposes on personal property of the following descriptions, whether owned or held as trustee or agent, is fixed by law at 4 mills on the dollar of valuation, viz:

- (1) All mortgages.
- (2) All moneys owing by solvent debtors.
- (3) All articles of agreement and accounts bearing interest.
- (4) All public loans, except those of the State or United States.
- (5) All loans issued by or shares of stock in any bank, corporation, or company, domestic or foreign, or limited partnership, created or formed under the laws of the State or United States or any other State or government, including car-trust securities and loans secured by bonds or any other form of certificate or evidence of indebtedness, whether the interest be included in the principal of the obligation or payable by the terms thereof, except shares of stock in any company liable to the capital-stock tax.
- (6) Moneys loaned or invested outside of the State.
- (7) All other moneyed capital in the hands of individual citizens of the State.
- (8) Shares of stock in foreign corporations held by residents of the State are taxable, although the stock of the companies issuing such shares is taxable in other States. Bonds and mortgages held by a resident trustee for the benefit of a nonresident cestui que trust are held to be taxable in this State.
- (9) Also stages, omnibuses, hacks, cabs, and other vehicles, and all annuities yielding annually over \$200.

This tax on personal property in 1898 was \$2,788,666.26 on a valuation of \$684,666,565.27.

As has already been stated, three-fourths of the net amount of this tax on personal property is returned by the State treasurer to the several counties of the State.

There is a special significant provision in the act making it unlawful for any person or persons loaning money at interest to require the person borrowing the same to pay the tax imposed thereon, and providing that in all cases where such tax shall be paid the same shall be deemed and considered usury and subject to the laws governing the same.

To facilitate the assessment of this class of intangible property each taxable is required to make to the local assessor a sworn detailed statement of such property owned by him, and heavy penalties, by way of fine or imprisonment, are imposed for making a corrupt and fraudulent return. The recorder of deeds, mortgages, and other instruments in each county is required to keep a separate detailed record of all mortgages or agreements to secure the payment of money and furnish a statement of such record on the first of each month to the county or city board of revision of taxes, and the prothonotary or clerk of the court of common pleas in each county or city is required to keep and furnish to such board a like record of every single bill, bond, judgment, or other instrument securing a debt entered of record in his office. It is the duty of the county commissioners or board of revision of taxes, upon obtaining record of the existence within any county or city of such mortgages and other obligations owned outside of that county, but within the Commonwealth, to transmit a certified statement of such record to the commissioners or board of the county where such obligations are owned.

A statement of such obligations is in turn transmitted to the local assessors before each regular assessment, for the purpose of assessment and taxation to the owners thereof.

Upon the refusal or failure of any taxable to make a properly verified return the assessor is required to make such return according to the best information he can obtain from the records or otherwise, which return the county board revises and corrects according to the best information obtainable. It is the duty of the board to send for the taxable and examine him under oath as to such taxable property, and, unless satisfactory reasons under oath are shown for such failure or neglect, to add to the amount of the estimate 50 per cent, the aggregate amount so obtained being the basis of taxation.

Up to the passage of the act of 1885 the assessed valuation of money at interest, including mortgages, judgments, bonds, notes, stock, etc., was but a fraction of the actual amount of such property in the State, the total valuation in that year being \$145,286,746; but under the improved methods of listing and assessment, and the 50 per cent penalty provided by the legislature, the valuation was greatly increased.

The increasing amounts returned since 1891 are as follows:

1891	\$579, 036, 227	1895	\$620, 020, 507
1892	590, 882, 560	1896	670, 803, 246
1893	607, 664, 408	1897	676, 713, 487
1894	616, 048, 542	1898	684, 879, 157

The increase in Philadelphia alone was from \$95,071,724 in 1885 to \$309,828,763 in 1895.

TAX ON COLLATERAL INHERITANCES.

All estates located in Pennsylvania or outside of that State, when the person seized thereof is domiciled in said State, passing from any person dying seized thereof, either by will or otherwise, to any person other than father, mother, husband or wife, children, and lineal descendants born in lawful wedlock, or the wife or widow of the person dying possessed thereof, which estates are of the clear value of \$250, are subject to a tax of \$5 on every hundred dollars of the clear value thereof. The amount of such collateral inheritance in 1898 was \$834,855.96.

TAX ON DIRECT INHERITANCES.

In 1897 a law was enacted which provided for a tax of \$3 on every \$100 of the clear value of all personal property passing by will or by the intestate laws of the State to any heirs not subject to the collateral inheritance tax; but personal property so passing, to the value of \$5,000, was exempted. This tax has been declared void by the courts on account of the generous exemption.

TAX ON WRITS, WILLS, DEEDS, ETC.

A State tax of \$3.50 is imposed on every writ of error issued or appeal granted by the supreme court, and a tax of 50 cents on every writ issued by the inferior courts, and of 25 cents on every transcript of a judgment of a justice of the peace or alderman. Records of deeds are required to collect for the use of the State 50 cents for every instrument offered for record. Registers of deeds collect 50 cents for the probate of each will and the same amount for granting letters of administration. A State tax of \$10 is levied upon the commissions of inferior officers of cities and counties, such as sheriffs, clerks of courts, health officers, etc.

The amounts realized from these sources in 1898 were as follows:

Tax on writs, wills, deeds, etc	\$146,787.40
Fees of county officers	23,517.33
Fees of State officers	140,463.76

Besides these revenues the State receives certain amounts from the fees of different State officers.

LICENSES.

Among the oldest sources of revenue in the State of Pennsylvania are licenses on various classes of business.

MERCANTILE LICENSES.

All persons engaged in mercantile business are required to pay annually, for the use of the Commonwealth, amounts varying, according to the annual sales, from a tax of \$7 on sales amounting to \$5,000 to a tax of \$1,000 upon sales of \$4,000,000.

The amount realized from this source in 1898 was \$536,999.55.

LIQUOR LICENSES.

The amount of State tax derived from various liquor licenses in 1898 was as follows:

Retail liquor licenses	\$531,029.46
Wholesale liquor licenses	458,733.12
Brewers' licenses	162,611.31
Bottlers' licenses	158,752.01
Total	1,311,180.90

OTHER LICENSE FEES.

State license taxes obtained from other sources in 1898, viz., billiard, brokers', auctioneers', peddlers', theater, circus, etc., and eating-house licenses, amounted to \$120,651.90.

STATE TAXATION.

The principal taxes received by the Commonwealth of Pennsylvania for the year 1898 may be summarized as follows:

1. From financial corporations:	
National banks.....	\$494,712.44
Incorporated State banks.....	66,730.83
Incorporated savings institutions.....	36,624.19
Trust companies.....	362,154.30
Total.....	960,221.76
2. From corporations in general:	
Foreign insurance companies.....	620,922.08
Tax on capital stock.....	8,014,465.24
Tax on loans.....	824,555.75
Tax on gross receipts.....	691,522.99
Tax on gross premiums.....	38,698.01
Bonus on charters.....	438,579.71
Total.....	5,646,748.78
3. From or through counties:	
Tax on personal property.....	2,722,245.58
Tax on writs, wills, deeds, etc.....	146,787.40
Tax on collateral inheritances.....	834,855.96
Tax on direct inheritances.....	3,811.85
Tax on loans (municipal and county).....	339,134.40
Receipts from licenses.....	2,051,445.13
Total.....	6,098,280.32
4. From other sources:	
Tax on net earnings or income (brokers, etc.).....	44,338.35
Tax on sale of fertilizers.....	18,490.00
Total.....	57,828.35

MERITS OF THE SYSTEM.

Mr. Eastman enumerates what he regards as the principal merits of the system of taxation in Pennsylvania as follows:

1. The separation of the local system, in subjects and administration, from the State system.

2. The uniformity resulting from taxation of corporations through State officers, whence it results that companies of the same class are taxed precisely alike in all sections of the Commonwealth, except upon their real estate, which is taxed locally.

3. The resulting inability of communities to harass corporations in the taxation thereof, and on the other hand the impossibility of large corporations obtaining exemptions to any extent from taxation by bribery or other similar means.

4. Simplicity and effectiveness in taxing all that a corporation has by assessing its capital stock at its real value, or rather at what its value would be but for its indebtedness.

5. The taxing of corporations on the basis of sworn reports required to be made by their officers, the accounting officers having the power to compel the appearance of company officers before them with their books and papers whenever they need more information than the reports of the company afford.

6. The requiring of sworn returns of personal property, with the system of checks thereon before mentioned. A taxpayer in Pennsylvania can not get rid of taxation on his personal property by swearing to a conclusion of law.

7. Finally, the fact that the consideration of practically all questions arising concerning the taxation of corporations is by law intrusted to one court—the court of common pleas of Dauphin County—whose jurisdiction as to such question extends throughout the State, with an appeal, of course, to the supreme court. The judges of the first-named tribunal have uniformly been men of ability, and by having constantly to deal with tax questions they have become deeply learned in the tax laws, so that their decisions have been generally consistent and uniform.

RECAPITULATION OF THE STATE TAXES ON CORPORATIONS.

Bonus on charters.—This source of revenue is not strictly a tax, but the price or consideration paid for the charter privileges. It is now one-quarter of 1 per cent upon the amount of authorized capital of the corporation, or any subsequent increase, payable in two installments, one at the time the charter is granted and the other within one year thereafter. The revenue from this source amounted during the fiscal year 1899 to \$780,626.

Tax on capital stock.—A tax is assessed upon the actual value in cash of the capital stock of corporations at the rate of 5 mills upon the dollar, with the exceptions noted. The amount collected in 1899 from capital stock (exclusive of banks) was \$4,575,511.

Tax on gross receipts.—A tax is imposed upon the gross receipts of transportation, telegraph, telephone, and electric-light companies, derived from business done wholly within the State, the rate being 8 mills upon each dollar of such receipts. The tax from this source amounted in 1899 to \$748,214.

Tax on gross premiums.—This tax is imposed upon the gross premiums of domestic insurance companies, derived from business done within the State, at the rate of 8 mills upon the dollar. The receipts from this source amounted in 1899 to \$61,882.

Tax on corporate loans.—This tax is imposed upon the interest-bearing loans or indebtedness of corporations, and is collected from the holder of the indebtedness by the treasurer of the corporation, who is required by law, as the agent of the State, to deduct the tax when paying interest to resident and taxable holders. The tax is at the rate of 4 mills upon the nominal or par value of the loan or indebtedness, and the amount collected from this source in 1899 was \$1,149,409.

Tax on bank stock.—This is imposed upon the shares of bank stock at the rate of 4 mills upon its actual value, and is collected from the shareholders of the bank. The amount derived from this source in 1899 was \$548,800.

Tax on net earnings or income.—This tax is imposed at the rate of 3 per cent upon the net earnings or income of incorporated State banks and savings institutions without capital stock. The revenue from this source in 1899 amounted to \$83,337.40.

(Bankers and brokers are required to pay a tax of 3 per cent upon net earnings or income, and the amount is included above.)

Tax on foreign insurance companies.—This tax is imposed upon the business of foreign insurance companies done in Pennsylvania, at the rate of 3 per cent of the gross premiums, and is collected through the commissioner of insurance. The revenue derived from this source in 1899 was \$646,775.

Classified statement showing amounts paid into the State treasury by the several classes of corporations named for the fiscal year 1898.

	Class of corporations.	Tax on capital stock.	Tax on loans.	Tax on gross receipts.	Tax on gross premiums.
1	National banks.....				
2	State banks.....				
3	Trust companies.....	\$314,179.04	\$23,761.13		\$16,880.79
4	Incorporated savings institutions (without capital stock).....				
5	Brewing companies.....	63,647.58	7,906.05		
6	Brick, clay, slate, stone, and quarry companies.....	6,444.36	2,098.68		
7	Bridge and turnpike companies.....	29,297.82	17,380.60		
8	Coal, coke, and coal-mining companies.....	287,361.55	74,415.06	\$497.55	
9	Ferries.....	197.80		290.11	
10	Gas (artificial and natural).....	125,387.13	6,475.66	158.32	
11	Insurance companies (domestic).....	76,229.54			38,698.01
12	Insurance companies (foreign).....				620,922.08
13	Land and improvement companies.....	60,322.87	14,148.75		
14	Light, heat, and power companies.....	70,841.21	13,990.09	42,283.37	
15	Manufacturing companies.....	138,426.19	86,258.91		
16	Market companies.....	11,479.06	3,453.15		
17	Oil and mining companies.....	27,288.23	2,838.31	23.76	
18	Railroads (steam).....	974,638.64	451,617.06	423,709.04	
19	Railways (passenger).....	676,031.98	74,663.77	168,591.49	
20	Transportation companies (miscellaneous).....	293,386.25	39,196.45	86,246.98	
21	Telephone and telegraph companies.....	19,121.91	460.49	24,586.39	
22	Water companies.....	81,374.21	26,749.88	132.91	
23	Miscellaneous companies.....	72,936.46	20,898.34	3.07	
	Total.....	3,328,644.28	866,316.88	691,522.99	676,500.88

Classified statements showing amounts paid into the State treasury by the several classes of corporations named for the fiscal year 1898—Continued.

	Class of corporations.	Tax on bank stock.	Tax on net earnings.	Bonus on charters.	Total.
1	National banks.....	\$494,712.44	.....	.....	\$494,712.44
2	State banks.....	65,746.38	.....	\$984.50	66,730.88
3	Trust companies.....	.....	.....	7,383.34	362,154.80
4	Incorporated savings institutions (without capital stock).....	.....	\$36,624.19	.....	36,624.19
5	Brewing companies.....	.....	8,909.20	.....	80,462.88
6	Brick, clay, slate, stone, and quarry companies.....	.....	5,830.50	.....	14,373.54
7	Bridge and turnpike companies.....	.....	88.34	.....	46,761.76
8	Coal, coke, and coal-mining companies.....	.....	16,289.61	.....	378,563.77
9	Ferries.....	.....	4.26	.....	492.17
10	Gas (artificial and natural).....	.....	59,428.29	.....	191,449.40
11	Insurance companies (domestic).....	.....	.....	.....	114,927.56
12	Insurance companies (foreign).....	.....	.....	.....	620,922.08
13	Land and improvement companies.....	.....	8,712.34	.....	78,183.46
14	Light, heat, and power companies.....	.....	24,138.44	.....	151,258.11
15	Manufacturing companies.....	.....	124,668.48	.....	349,353.58
16	Market companies.....	.....	3.75	.....	14,985.96
17	Oil and mining companies.....	.....	1,156.38	.....	81,806.68
18	Railroads (steam).....	.....	.....	.....	1,850,014.74
19	Railways (passenger).....	.....	20,556.88	.....	984,852.07
20	Transportation companies (miscellaneous).....	.....	128,806.66	.....	497,636.34
21	Telephone and telegraph companies.....	.....	9,236.37	.....	58,405.16
22	Water companies.....	.....	24,807.25	.....	133,064.25
23	Miscellaneous companies.....	.....	10,948.01	.....	104,785.88
	Total.....	560,458.77	38,624.19	446,897.55	6,606,966.04

Valuation of property taxable for local purposes, 1898.

Real estate taxable.....	\$2,685,199,712
Horses, mares, geldings, and mules over 4 years old.....	28,771,539
Neat cattle over 4 years old.....	11,916,817
Salaries and emoluments of office, offices, posts of profit, professions, trades, and occupations.....	125,632,996

Aggregate value of all property taxable for local purposes... 2,846,607,609

The secretary of internal affairs in his report for 1898 says in relation to the taxation of property for local purposes: "It is probable that the system of taxation, according to the enactments of the legislature of Pennsylvania, is as equitable a one as has yet been devised, and the failures that are encountered and the inequalities that exist are attributed in most part to the faulty execution of the laws rather than to any defects in the enactments themselves. Therefore it follows that the wrongs that exist, if such wrongs do exist, are due to a failure on the part of the people to execute with fidelity the duties imposed upon the officers chosen by the people to carry out the laws."

Taxes for all purposes, 1898.

Amount of taxes collected in counties for all purposes.....	\$50,815,870.81
Amount of taxes collected on personal property.....	\$3,427,385.63
Amount collected on occupations, etc.....	1,934,982.05
Amount collected on licenses.....	5,779,153.96
Amount on real estate, railroad (locally assessed) ..	757,593.48
Amount on real estate of other corporations.....	2,501,423.60
	14,400,538.73

Balance on real estate of individuals..... 85,915,832.09

The tax on occupations, professions, etc., is not generally enforced, some counties, among them Philadelphia and Dauphin, making no returns whatever.

More stringent legislation for the enforcement of this tax is urged by officials. Assessments are made triennially under the authority of the county commissioners of the several counties. Precepts are issued by such commissioners to the local assessors, who proceed to take an account, in forms directed by law, of the names of all taxable inhabitants of their respective districts, and also an account of the following real and personal property:

First. Real estate, viz: All houses, lands, lots of ground of all descriptions, all furnaces, forges, bloomeries, distilleries, sugarhouses, malt houses, breweries, tanyards, and ferries.

Second. The following personal property, viz: All horses, mares, geldings, and cattle above the age of 4 years.

Third. All offices and posts of profit, professions, trades, and occupations; also all single freemen above the age of 21 years who do not follow any occupation or calling.

Only the subjects of taxation thus enumerated are directly taxable for local purposes. The whole system is under the supervision of a State board of review commissioners, consisting of the auditor-general, State treasurer, and secretary of the Commonwealth.

The cities of Philadelphia and Pittsburg have special systems of their own for local taxation from like sources.

In conclusion we quote the following from Eastman on Taxation for State Purposes in Pennsylvania as to the attempts made in recent years to change the system in that State:

"At the session of 1887 an act was passed which would have materially changed the tax system of the State, but which failed to become a law, as will be remembered, owing to the failure of the president pro tempore of the senate to affix his signature thereto. A tax commission was created by law at the same session of the legislature, which reported a revenue bill, a principal feature of which was the substitution of a single tax on corporations to take the place of the existing taxes thereon on capital stock, gross receipts, and loans or bonded indebtedness. The legislature took no action on the bill so reported, and at the session of 1889 another tax commission was created. The members thereof failed to agree on any measure and made individual reports, suggesting various changes in methods of taxation, none of which was made.

"At almost every session of the general assembly for the past 8 or 10 years persistent efforts have been made to secure the passage of bills usually known as 'granger bills,' because very generally supported by the members of the order of Patrons of Husbandry, so drawn as to effect sweeping changes in our tax legislation.

"As a concession to the supporters of these measures, the auditor-general was instructed by resolution of the general assembly at the session of 1895 to procure from all corporations in the State reports made in the manner required by the tax bill then pending, and to make feigned settlements thereon, in order to ascertain whether the proposed measure would supply a sufficient amount of revenue to meet the expenses of the State government, or, in other words, whether the proposed system would produce an equal amount of revenue with the old. Such reports were to be obtained for 2 consecutive years. They have already been obtained for 1 year, and have recently been required for the second year. It is understood that the statistics thus far obtained have failed to show that the proposed measure would produce the necessary amount of revenue.

"In 1892 a Pennsylvania tax conference was formed by the representatives of various important interests in the State, an unofficial but highly respectable body, owing to the talents and earnestness of the members thereof. The object of the commission was to supply statistics upon which discussions of proposed changes of taxation might be based. It has been mainly owing to the lack of such data that former attempts to agree upon a revision of the tax laws have failed. Two preliminary reports were made by this conference, one containing much valuable information relative to objects of taxation in Pennsylvania, and the other giving a comparative statement of the tax systems of all other States. The commission finally reported the revenue bill introduced at the session of 1895, above referred to, data concerning the operations of which, if it becomes a law, are yet being procured. Owing to the death of Joseph D. Weeks, of Pittsburg, the chairman of the conference, its operations have of late languished, if indeed its organization may not be considered as practically dissolved.

"In closing this sketch it may be said that, while the State tax system of Pennsylvania can doubtless be improved in many respects, the system itself is a very excellent one. The burdens of taxation for State purposes are almost wholly placed upon corporations, leaving individual taxables subject to taxation for local purposes only, except that the mortgages, bonds, and other classes of personal property taxable under the laws of the State held by them pay a State tax, but three-fourths of even this tax is returned to the counties to relieve the burdens of local taxation.

"The State tax laws of Pennsylvania are not only in the main just, but they have been so thoroughly construed by hundreds of decisions of the courts that but little opportunity exists for disputing over the proper interpretation thereof.

"Before wholly abandoning a system so long established, so thoroughly interpreted, and so generally equitable, for the purpose of adopting any untried system devised by theorists, every feature of which must be construed by the courts, it is believed that thoughtful men will require nothing short of an absolute demonstration that the proposed system will prove in all important respects the superior of the old."

OHIO.

The power of the legislature in this State over taxation under the constitution, as determined by the decisions of the supreme court, is thus defined by the Ohio tax commission of 1898:

"First. The constitution prohibits the taxation of persons.

"Second. As to property: (a) It must be taxed for general revenue and by a uniform rule; according to its true value in money; (b) it may be taxed by assessment for special benefits derived by it from public improvements.

"Third. Business, which includes all subjects of taxation other than persons and property, may be taxed either for general revenue or for the purposes of regulation, in such mode and manner as the legislature in its discretion may determine."

GENERAL PROPERTY TAX.

To these excessive limitations upon the legislative power, imposed by the constitution of the State, appears to be due, to some extent at least, the retention of the general property tax system, which, "in principle, is a survival of the economic conditions of the early part of the century," and the most vigorous efforts to subject property to taxation by means of one uniform tax on all classes.

The general property tax still constitutes the principal source of revenue for State as well as local purposes, and Ohio has adopted the most rigorous and drastic methods devised in any State for bringing upon the tax rolls all classes of property, real and personal.

During recent years efforts have also been made through special legislative enactments, without pursuing any uniform or definite plan, to supplement the general property tax system and bring it more in harmony with modern economic conditions. In consequence of such desultory efforts we find in this State the general property tax "side by side with the gross-receipts tax, the excise tax, and assessment by the unit rule obtained from the stock, bonds, and earnings, and others, all imposed on corporations essentially alike in character and differing only in name."

The legislature seems to have been inclined to resort to any expedient within constitutional restrictions which promised to bring about improvement in the antiquated system of the State, and we find corporations substantially alike in character taxed by 6 distinct methods, which will be described hereafter.

THE LEVY.

The amount of taxation necessary to be levied annually for State purposes is determined by the legislature, for county purposes by the county commissioners, for township purposes by township trustees, for school purposes by the boards of education, for municipal corporations by the city councils. Each of these bodies reports its estimates to the county auditor, who levies the taxes upon the valuation as reported to him by the various boards of equalization.

ASSESSMENT.

One assessor is annually elected in each ward and township to list and return personal property. His labor is supplemented by the county auditor and the annual city and county boards of equalization.

Other assessing officers and boards are the county auditors; the board of appraisers and assessors for express, telegraph, and telephone companies, composed of the State auditor, State treasurer, and the attorney-general; the annual State board of equalization for banks, composed of the governor, the attorney-general, and the State auditor; the annual State board of equalization for railroads, composed of the State auditor, the attorney-general, and the State treasurer; the decennial city, county, and State boards of equalization for real estate.

All property in the State, whether real or personal, and whether belonging to individuals or corporations, and all moneys, credits, investments in bonds, stocks, or otherwise, of persons residing in the State, are declared to be subject to taxation, except only such as may be expressly exempted.

EXEMPTIONS.

Under the provisions of the constitution the legislature has granted exemptions to public-school property, all property of public colleges not used with a view to profit, cemeteries, State and Federal property, county buildings, houses used exclusively for public worship, poorhouses, buildings belonging to institutions of purely public charity together with the land occupied by such institutions not used with a view to profit, property used for extinguishing fires, public property used for public purposes exclusively, personal property to an amount not exceeding \$100, etc.

REAL ESTATE.

Real estate is defined to include not only land, but all buildings, structures, and improvements and fixtures of every kind thereon, and all rights and privileges belonging thereto unless otherwise specified, to be assessed where located "according to its true value in money."

Real estate is assessed decennially by assessors elected by the people for the various assessment districts, which are coequal with the number of wards and townships within the county, each assessor assessing the real property within his district.

The action of the assessors is reviewed by the city and county decennial boards of equalization for real estate, and their action in turn is reviewed by the decennial State board of equalization for real estate. Changes in valuations and errors in the valuation of real estate are reported by the annual assessor of personal property, and changes in valuation and errors are corrected and equalized by the annual city and county boards of equalization.

PERSONAL PROPERTY.

Personal property of all kinds, tangible and intangible, is by law subject to taxation, almost without exemption.

Apparently to avoid misunderstanding and escape from the duplicate, such property is defined with great minuteness of detail.

The statute provides that the term "investment in bonds" includes all moneys in bonds or certificates of indebtedness or other evidences of indebtedness of whatever kind, whether issued by domestic, public, or municipal corporations, or by the United States, held by persons residing in Ohio, whether for themselves or others. The term "investment in stocks" includes all moneys invested in the capital stock of any company, for the taxation of which no special provision is made by law, held by persons residing in the State, either for themselves or others. The term "personal property" includes, first, every tangible thing, being the subject of ownership, whether animate or inanimate, other than money, not forming any part of real property; second, the capital stock, undivided profits, and all other means not forming part of the capital stock of every company, and every share, portion, or interest in such stock, profits, or means, by whatsoever name the same may be designated; third, the money loaned on pledge or mortgage of real estate, although a deed or other instrument may be given for the same, if between the parties the same is considered as security merely. The term "money" includes any surplus or undivided profits held by societies for saving, or banks having no capital stock, gold or silver coin, bank notes of solvent banks in actual possession, and every deposit which the person owning, holding in trust, or having the beneficial interest therein is entitled to withdraw in money on demand. The term "credits" means the excess of the sum of all legal claims and demands, whether for money or other valuable thing, due or to become due, including deposits in banks or with persons within or out of this State, other than such as are held to be money, when added together (estimating every such claim or demand at its true value in money), over and above the sum of legal bona fide debts owing by the owner; but in making up the sum of such debts owing, there shall be taken into account no obligation to any mutual insurance company, nor any unpaid subscription to the capital stock of any joint stock company, nor any subscription for any religious, scientific, literary, or charitable purpose; nor any acknowledgment of any indebtedness, unless founded upon some consideration actually received and believed at the time of making such acknowledgment to be

a full consideration thereof; nor any acknowledgment made for the purpose of diminishing the amount of credits to be listed for taxation; nor any greater amount or portion of any liability as surety than the person required to make the statement of such credits believes that such surety is in equity bound and will be compelled to pay or to contribute in case there be no securities.

LISTING SYSTEM.

Every person "of full age and sound mind" is required to make out and deliver to the assessor a detailed statement of all personal property owned by him or in his possession or control, and verify the same by oath; and the assessor is required to demand such sworn statements.

Any person who, being called upon to list property for taxation and claiming to have none, either on his own account or for others, subject to taxation, is required to make oath to the truth of his claim in that regard.

Such statement is required to set forth truly and distinctly in number, detail, and value thereof, various kinds of chattels and the value of all articles of personal property not included in any special class; the average value of the goods and merchandise which such person is required to list as a merchant; the value of property which he is required to list as a banker, broker, or stock jobber; the average value of materials or manufactured articles which he is required to list as a manufacturer; moneys on hand or on deposit subject to order; the amount of credits as above defined; the amount of all moneys invested in bonds, stocks, joint stock companies, or otherwise; the monthly average amount or value for the time he held or controlled the same within the preceding year of all moneys, credits, or other effects invested in or converted into securities of the United States or of the State; and any indebtedness created in the purchase of such securities can not be deducted from credits.

Every person who may hold any property belonging to others is required to list the same separately from his own and in like manner, specifying the name of the person, estate, company, or corporation to whom it belongs.

Deposits with banks or persons subject to draft on demand are taxable as money; if payable on time they are taxable as credits.

These provisions apply to all bonds and other evidences of indebtedness of any city, county, town, railroad, telegraph, express, or other company, and the stock of any corporation whether in or out of the State, and notwithstanding the capital of the corporation is taxed in the State where it is located.

Money or credits as defined must be listed wherever the same may be, and debts can only be deducted from credits.

Shares of stock in banks, railroads, and other companies in Ohio specifically provided for are omitted from returns of holders, because the returns of the officers of such companies embrace both capital and means.

Specific rules are prescribed for the valuation of personal property, the general rule being "at the usual selling price thereof."

Investments are to be valued at the true value thereof in money; deposits at the full amount; credits for certain sums payable in money, property, or labor at the full amount; annuities or moneys receivable at stated periods at the sum which they are believed to be worth at the time of listing.

Severe penalties are imposed by law upon assessing officers for the violation of rules for valuing personal property.

If any party required to list neglects or refuses to list or swear to the statement the assessor must note such fact and make the return from the best information he can obtain, whereupon the auditor is required to add 50 per cent to the amount returned, and the amount so increased becomes the basis of taxation.

The manner in which the stock and property of merchants and manufacturers shall be listed and the kinds of property that shall be included are minutely defined.

Shares of stock in building and loan associations upon which no loans have been made are regarded as credits and the holders required to list them for taxation at their true value in money.

The law particularly specifies what the oath administered to the party listing property shall contain. It is comprehensive and "ironclad," and includes everything that might possibly disclose any evasion or deception.

If any person required to list property for taxes shall in any year or years make a false return or evade a return, the county auditor is required to ascertain as nearly as practicable the true amount of personal property omitted during such years and add 50 per cent thereof, and taxes are to be collected on the sum so obtained.

In case the county auditor has reason to believe or is informed that any person has made to the assessor a false statement, or that the assessor has not returned the full amount required to be listed or has omitted or made erroneous return of any property, he is required to proceed to correct such return, and empowered to summon and examine witnesses, the party found to have made such false statement being liable for the costs of the proceedings.

It will thus be seen that in this State the laws provide for the most careful listing by individual statement under oath and under pain of heavy penalties, the most inquisitorial examination into private affairs, and they have even gone so far as to authorize the employment by county commissioners of persons to give information concerning the property of individuals, which would result in the personal property being placed upon the tax rolls. These persons are termed inquisitors, and in some counties such tax inquisitors have been allowed and paid 25 per cent of the taxes collected through such information. Yet, notwithstanding these efforts, the results, so far as getting personal property, tangible and intangible, upon the rolls is concerned, are not much more satisfactory than in other States, and there appears to be an increasing disposition to employ other methods to a greater extent in reaching personal property substantially of a corporate character.

Referring to this subject, the governor of the State, in his special message, says that personal property is valued all the way from full value down to nothing; in fact, the great majority of the personal property of the State is not returned, but entirely and fraudulently withheld from taxation. So far as personal property is concerned, the fraud is with the people who list their property for taxation. The idea seems largely to prevail that there is inequality in taxation, and that there is no harm in cheating the State, although to do so a fraudulent return must be made and perjury committed. This offense against the State and good morals is too frequently committed by men of wealth and high character and corresponding position in society.

Dr. Ely, after investigating this system and conversing with many of the prominent men of the State, says that "nobody claimed that more than a comparatively small fraction or part of personal property was reached in the larger cities, while it was generally if not unanimously held that the larger the city the smaller the proportion of the personalty reached—as indeed always happens."

He refers to the statement of a prominent lawyer in that State who holds estates in trust for several parties, that whenever he goes to the tax office he feels capable of committing robbery, arson, and murder, because he is compelled to pay taxes on estates of \$3,000, \$3,000, and \$4,000 belonging to little orphan children, whereas he sees wealthy clients paying on 10 or 15 per cent of what he knows they are worth.

Dr. Ely, in conversation with a gentleman, once an official, who had had long service in the tax departments of Ohio, said: "It seems to me from what you say there is not a wealthy man in the State of Ohio who is not a perjurer." He replied, "It is true."

The tax commission, in its report of 1893, after thorough investigation and statistical demonstration of the results of these methods in the taxation of personal property, concludes that they are productive of very gross injustice and inequality; that while fully one-half of the property exists in intangible form, of this all but a mere bagatelle escapes taxation entirely. The commission is very severe in condemnation of the system and its results in this respect.

Mr. Frederic C. Howe, of the Cleveland bar, formerly secretary of the Pennsylvania tax conference, in a pamphlet upon Taxation of Quasi-public Corporations in Ohio, says:

"Personal property, while by law subject to taxation almost without exemption, and with the most stringent measures enacted to secure its assessment, is seldom returned save in the rural districts, where it can not escape the assessor's notice. Every conceivable device of the legislator to get personal property on the duplicate has failed here as elsewhere, and realty can hope for but little relief from this source."

The rigid inquisitorial system is frequently pointed to by tax commissions and officials of other States as a practical success in reaching personal property. The Ohio tax commission of 1893, however, after careful investigations, shows that this system does not succeed in getting upon the tax duplicates any appreciable part of the personal property which is not tangible and not in sight; that while in country counties, where the assessor is personally acquainted with the circumstances of the taxpayer, it is in a measure successful, in the city counties it is an utter failure.

The commission states, as a result of a thorough discussion of the subject, that fully one-half of the property of a modern State exists in intangible forms, and of this all but a mere bagatelle escapes entirely when the attempt is made to reach it in the form of property.

CORPORATIONS IN GENERAL.

All corporations, except telegraph, telephone, express, and railroad companies, and such others as are otherwise specially provided for, are required to list, under oath, and return to the auditors of the several counties in which such property is situated, all their personal property, including moneys and credits of such companies within the State, and also the real estate necessary to their daily operations, at the actual value in money; together with a statement of the amount of such property situated in each ward, city, village, or township therein.

The value of all movable property is thereupon added to the stationary and fixed property and real estate, and apportioned to such wards, cities, villages, or townships pro rata, in proportion to the value of the real estate and the fixed property therein, and all property so listed and apportioned is subject to and pays the same taxes as other like property in such cities, villages, wards, or townships.

Such corporations are also required to return to the State auditor the aggregate amount of property listed in the several counties. If, in the opinion of the county auditor, such report is incorrect, he is authorized to correct it.

The county board of equalization and the State board of equalization convene annually, and the county auditor is required to lay before these boards, for the territory they respectively have jurisdiction over, the returns of the assessors, together with the returns made to him by corporations.

These boards have power to hear complaints, and may equalize the valuations of all real and personal property, adding to or deducting from the valuation thereof upon such evidence as shall be satisfactory to them.

BANKS.

Unincorporated banks are required to file annually with the county auditor a statement, under oath, showing—

First. Average amount of notes and bills receivable discounted or purchased in the course of business.

Second. The average amount of accounts receivable.

Third. The average amount of cash and cash items in possession or transit.

Fourth. The average amount of stocks, bonds, including United States Government bonds, or evidences of indebtedness held as an investment or in any way representing assets.

Fifth. The amount of real estate at its assessed value.

Sixth. The average amount of deposits.

Seventh. The average amount of accounts payable, exclusive of current deposit accounts.

Eighth. The average amount of United States Government and other securities exempt from taxation.

Ninth. True value of furniture and other property.

From the aggregate amount of the first 5 items is deducted the aggregate amount of items 5, 6, 7, and 8, and the remainder added to the ninth item becomes the basis for taxation, and subject to the same rate as other personal property. These provisions apply also to incorporated savings banks.

INCORPORATED BANKS.

All the shares of the stockholders in any incorporated bank located in the State are listed at their true value in money and taxed in the city, ward, or village where such bank is located at the same rates as other property taxed locally. The real estate of any such bank is taxed where located.

The cashier of each incorporated bank is required to return to the county auditor a true statement, under oath, exhibiting in detail and under appropriate heads the resources and liabilities of such bank on the Wednesday next preceding the second Monday in May, together with the name and residence of each stockholder and the number of shares held by each.

Upon receiving such report the auditor fixes the total value of the shares of such bank according to their true value in money and deducts therefrom the value of the real estate as shown by such report.

Such reports and valuations are thereupon passed upon and equalized by the State board of equalization for banks, composed of the governor, State auditor, and attorney-general.

Valuations, 1899.

Valuation of real estate in Ohio in 1899	\$1,256,524,809.00
Valuation of personalty	530,034,260.00

Total	1,786,559,069.00
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The amount of taxes raised in 1899 was as follows:

State tax	\$5,071,800.31
County and local purposes	37,864,845.06

Total tax	42,936,645.37
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The classification of valuations of various kinds of personal property, as equalized by local boards, is shown by the following table from the report of the auditor of State for 1899:

Horses	\$27,283,936.00
Cattle	24,802,704.00
Mules, etc	494,346.00
Sheep	6,753,401.00
Hogs	4,972,424.00
Carriages	4,229,946.00
All other personal property subject to taxation and not included in any of the foregoing or subsequent items of this statement..	37,038,250.00
Watches	1,820,019.00
Pianos and organs	4,680,475.00
Mining stock	37,818,731.00
Value required to be listed as banker, broker, or stock jobber	753,817.00
Manufacturers' stock, etc	15,439,263.00
Value of all moneys in possession or on deposit subject to order ..	41,102,825.00
Value of all credits after deducting all bona fide indebtedness	90,135,764.00
All moneys invested in bonds, stocks, joint stock companies, annuities, or otherwise	7,874,476.00
Bank, railroad, and other corporation property returned to county auditors	210,110,948.00
Total value	514,884,745.00

FOREIGN INSURANCE COMPANIES.

Every agency of an insurance company incorporated outside the State is required to return annually to the auditor of the county in which it does business or from which it collects premiums the amount of the gross premium receipts in such county for the calendar year; provided, however, that in the case of regular companies, wherever property holders participate in the surplus and earnings of the company, dividends or surplus from previous payments allowed and used in the payment of current premiums, cancellation or surrender values, and commissions paid to citizens of the State during the period for which receipts are reported are deducted from such gross receipts, and the net amount so obtained is the basis for taxation in such county. Such gross premium receipts are entered upon the tax list of the proper county and are subject to the same rate of taxation as other personal property.

The superintendent of insurance annually charges and collects from such insurance companies such a sum as added to the amount of taxes collected in the various counties will amount to $2\frac{1}{4}$ per cent of the gross receipts as shown by their annual statements under oath to the insurance department. Upon failure to pay such tax or upon false statement of the gross premium receipts the license of such insurance company is revoked. The amount so collected by the superintendent of insurance is paid into the general revenue fund of the State. The amount so collected in 1899 was \$142,615.41.

RAILROAD COMPANIES.

Mr. Frederic C. Howe says:

"Steam railroads are still assessed for taxation in Ohio by methods long since abandoned by more progressive States. The plan is a modified survival of the general property tax, and has persisted by inertia. While most States have appreciated their inability to measure railroad values by an actual inventory of con-

stituent elements, and have adopted methods based on the idea that the road is a unit or a system, and that its value includes its franchise and is indicated by its capital stock or earning capacity, Ohio has clung to the theory that railroad values are to be determined in the same manner as the value of a farm or stock of goods, by enumerating the separate valuations of its real estate, right of way, rails, rolling stock, and equipment.

"The plan is primitive and the results unsatisfactory. It not infrequently favors dishonesty on the part of the officials.

"Valuations are low and tend to become lower, and bear no necessary relation to the assessment of other forms of wealth."

Railroad companies in Ohio are subject to two forms of taxation; the first in the nature of an ad valorem property tax, and the second in the nature of an excise tax levied by the State.

PROPERTY TAX.

Valuations of railroad property for assessment and taxation are made by the several auditors of counties through which the roads pass, or within which they have their tracks or roadway.

These county auditors are constituted a board of assessors and appraisers to revise, value, and apportion the property, moneys, and credits of such railroad companies in the several counties. The board keeps a complete record of its proceedings, certified copies of which are required to be sent to the auditor of each county constituting a member of such board, to be recorded and open to public inspection.

This board meets annually to ascertain and value the roadbed, water and wood stations, and such other realty as is necessary to the daily operation of the roads, and all the personal property of the railroad companies, including moneys and credits and the undivided profits, reserve or contingent funds, and also the equipment, locomotives, cars, machinery, tools, etc., belonging to them or under their control.

The board may require from the officers of each road a detailed statement under oath of all the items and particulars constituting such property, moneys, and credits, and the value thereof, and may examine the books and papers of the road and any or all of its officers, receivers, servants, and agents touching any matter relating to the same.

The value of the property, moneys, and credits so found is apportioned by the board among the several counties through which the road or any part thereof runs, and to each city, village, township, and district; the real estate, structures, and stationary property, in proportion to the value of the real estate, structures, and stationary personal property therein, and the rolling stock, main track, roadbed, supplies, moneys, and credits, in proportion to the length of road in each county, city, village, and district.

Where the line of such railway is divided into divisions or branches, it is provided that so much of the rolling stock as belongs to or is used solely upon any one of such divisions shall be apportioned in the same manner to the county or counties and to each city, village, or district through which such division runs.

When any railroad company has part of its road in the State and part thereof in another State, such board is required to take the value of such property, money, and credits, so found as aforesaid, and divide it in the proportion which the length of such road within the State bears to the whole length of such road, apportioning the values thereof in the State as aforesaid.

Certificates of such apportionment are sent to each county auditor and to each city, village, or district interested. The several county auditors thereupon apportion upon the tax list the amount, as certified or as equalized by the State board, to such county, city, village, or district.

The action of the board of county auditors is reviewed by the State board of equalization for railroads, composed of the State auditor, State treasurer, commissioner of railroads and telegraphs, and attorney-general. This board has power to hear complaints and to equalize the valuation of the board of county auditors, but may not reduce the aggregate of the value of the property of railroad companies within the State below the amount returned by such board.

EXCISE TAX.

In 1896, an act was passed by which every railroad company doing business within the State of Ohio is required to file annually with the State auditor a statement under oath showing the name and nature of the company, location

of principal office, names and addresses of officers, and in case of each railroad situated wholly in Ohio, the gross earnings from operation, and in case of each railroad partly within and partly without Ohio, the gross earnings from the operation of the entire line, with the miles of line within and without Ohio.

The auditor of the State, State treasurer, and attorney-general constitute a State board of appraisers and assessors, which proceeds to ascertain and determine the gross earnings of such railroads in the State from such reports, and reports made to the commissioner of railroads and telegraphs. When the line of a railroad company is partly within and partly without the State, such proportion of the gross earnings are taxed as the length of line within the State bears to the whole mileage.

The State auditor annually charges and collects an excise tax of one-half of 1 per cent of such gross earnings, the proceeds being paid into the general revenue fund of the State.

The amounts of excise taxes on the gross earnings of railroads for the 8 years during which the act has been in force are as follows:

1897.....	\$304,950.24
1898.....	844,715.32
1899.....	868,218.74

The excise tax per mile of road was \$41.32 in 1899.

The total value of property of railroad companies in 1897, 1898, and 1899, as fixed by county auditors and equalized by the State board, was as follows:

1897.....	\$105,101,916
1898.....	105,730,241
1899.....	106,487,590

Statement of valuation of property of railroads in 1899.

Main track.....	\$65,746,848
Second track.....	4,574,898
Branches.....	2,733,564
Sidings.....	7,229,079
Rolling stock.....	18,955,451
Buildings.....	4,845,965
Tools and machinery.....	780,468
Moneys, credits, etc.....	1,618,986

Total of taxable property.....	106,484,754
Value fixed by State board, 1899.....	106,487,590

The State and county taxes paid by railroad companies in Ohio on their right of way, real estate, and equipment for the same years were:

1897.....	\$2,816,229.97
1898.....	2,614,187.05
1899 (estimated).....	2,662,189.00

making the total taxes, State and county and excise, in those years—

1897.....	3,121,087.29
1898.....	2,958,852.87
1899.....	3,025,407.74

Total taxes per mile of road in 1899, \$343.54.

The gross earnings of railroads, Ohio proportion, in 1898 were \$68,764,988.78, and in 1899 \$72,869,848.68.

The income, Ohio proportion, after deducting operating expenses, was in 1898 \$19,702,720.32, and in 1899 \$31,101,792.89.

By the foregoing statement it appears that railroad companies in Ohio pay in taxes nearly 4½ per cent of their gross earnings. Comparison with the taxes paid in Michigan and Wisconsin shows that the percentage of gross earnings paid is considerably in excess of that levied in those States, which impose a specific tax only on gross earnings.

In Michigan, in 1899, the total gross earnings of railroads were \$35,892,864.22, and the total tax amounted to \$1,063,199.76, or about an average of 3 per cent of the earnings. The graded rate in Michigan is from 2 per cent to 5 per cent, according to the amount of earnings per mile. The Ohio roads undoubtedly have a greater average traffic and would come within the higher rates.

The total gross earnings of railroads in Wisconsin for the year 1898 amounted to \$32,189,172.20, and the tax on such earnings was \$1,247,357.08, a small fraction less than 4 per cent.

The value of all taxable real estate and personal property in Ohio, according to the consolidated tax duplicate of 1897, was \$1,748,008,639, and the total tax levied upon that basis amounted to \$40,721,769.85, making the average rate of taxation 2.32 per cent.

The aggregate assessed valuation of all taxable property in Wisconsin in 1897 was \$625,101,151.81, and the aggregate of all taxes was \$16,668,592.72, making the rate of taxation 2.66 per cent.

The aggregate valuation of property subject to taxation in Michigan in 1896 was \$1,105,100,000, and the amount of taxes for that year was \$19,500,061; rate of taxation, 1.76 per cent.

This comparison is of some value as affording a measurement in contrast with a modern method of taxation, entirely separate and distinct from the general property tax system in both valuation and rate of taxation, but can not be regarded as a reliable criterion as to the adequacy of railroad taxation in Ohio, even if a comparison between two utterly irreconcilable systems of taxation can be made a safe criterion at all.

The proportion of the assessed valuation to the actual value of all the property of the States named, assessed and unassessed, can not be given with any degree of accuracy. From varying statistical statements of taxing officials and investigators, the statement that the assessed valuation is not more than one-third of the actual value of all property would probably be a very conservative guess.

THE OHIO TAX COMMISSION'S REPORT ON RAILROADS.

One of the most interesting features of the very excellent report of the Ohio tax commission of 1893 is its elaborate investigation of railroad taxation, its attempt at comparison of the burden imposed upon railroads in Ohio with that of other property under existing methods, and the proportionate amount of the earnings of such property paid in taxes as compared with that of some other forms of corporate property and some city real estate—this in support of the contention of the commission that the correct measure of corporate ability as a basis of taxation is income or earning capacity. Its recommendations along that line and the results of its investigation and conclusions are in some respects more surprising than sound. This feature of the report has attracted special attention throughout the country.

The commission attempted to arrive at the true value of railroad property by a comparison of gross and net earnings, stock-exchange quotations, and bonded indebtedness, the assessed valuation being compared with that of 1892, and finally adopted as a fair method of determining the value of the property of railroads within the State the capitalizing of their net income at 6 per cent. Up to the year 1896 the ad valorem valuation by county auditors was the only method of assessment and taxation of railroads, and the excise tax law of that year, above set forth, was the recommendation of the commission. After showing that the valuations by county auditors in 1892 were less than the valuations in 1878, the commission says:

"The valuation of the Lake Shore and Michigan Southern Railroad Company in the year 1878 was \$12,996,609; in the year 1892 it was \$12,457,745. In the year 1878 the gross earnings of the whole Lake Shore system were \$18,505,159, whereas in the year 1892 the gross earnings were \$22,415,832, and the net earnings were \$6,612,192 as against \$5,493,165 in 1878.

"The comparison for the same respective years of the valuations of the Cleveland and Pittsburg Railway Company is equally striking. In 1878 the whole valuation was \$5,781,000; in 1892 it was \$4,495,000. On the other hand, the company did 50 per cent more business in 1892 than in 1878, its gross receipts being \$2,272,166 in 1878 and \$3,429,278 in 1892.

"The Pittsburg, Fort Wayne and Chicago Railway Company was assessed in Ohio in 1878 at \$10,733,001 and in 1892 at \$10,525,948, while the gross receipts in 1878 were \$7,880,000 and \$11,659,142 in 1892."

The commission says it is hardly open to doubt "that the real value of the property of many of these railroads has greatly increased, and that this is certainly true of the leading lines. It is a matter of common information that the through 'trunk lines,' like the Pennsylvania and Lake Shore systems, have spent enormous sums of money of late years in the improvement of their roadbeds.

"Again, the equipment of these roads has improved with the improvements made in rolling stock. The earning capacity per mile must be vastly greater now than it was 16 years ago."

The commission attempts to determine the real value of many of the railways in Ohio. After mature consideration, the commission says the railroad companies

suffer no injustice if their income is capitalized at 6 per cent; this is in effect determining that their real value is $16\frac{1}{2}$ times their net income, or, to put it in another form, that anything that pays 6 per cent is worth par. In the case of many of the railway companies the statements of the net earnings were obtained by the courtesy of the railroad officials, and in other cases from Poor's Manual of Railroads for the year 1892. It may perhaps be said that the year 1892 was an exceptional year. For a series of years, however, since 1886, the earnings of many of our railways had been reasonably constant. Even great systems like the Lake Shore Railway Company showed variations in net earnings of comparatively small amounts. It is shown that a large part of the capital of railroad companies is represented by bonds, which are often the only real capital which the railway has. In most cases the interest on the bonds is regularly paid for long series of years together.

Again, it is noted that this method of reaching the real value of a railway company's property is entirely independent of the amount of stocks or bonds issued upon the property. The earning capacity of the property is its real test, and not at all the judgment of the promoters of the enterprises. Their judgment may be greatly at fault; the stock may be "watered," to use the popular phrase, yet no injustice is done to the owners by the method which has been adopted. Of course, it will be understood that in determining the values of those properties which run through several States the amounts which are proportionate to the mileage in Ohio were ascertained.

Pursuing these methods, it is seen, for instance, that the real value of the property of the Cleveland and Pittsburg Railway Company is \$18,641,207; it has 86 per cent of its mileage in Ohio; the real value in Ohio is therefore \$16,081,488; the appraised value in Ohio is \$4,495,228. Take another instance: The net earnings of the Columbus, Hocking Valley and Toledo Railway Company are \$1,567,457.33; its real value by this method is determined to be \$26,124,289; it is assessed for taxation in Ohio at \$4,024,221. Taking the Baltimore and Ohio Southwestern Railway Company, its net earnings are \$309,809.40; its real value, all in Ohio, is \$18,496,825; its assessed value is \$2,701,839. Take still another instance: The Toledo and Ohio Central Railway Company has net earnings of \$506,306.01; its total value, all in Ohio, is \$8,488,433; its appraised value is \$2,461,538.

It will be useful, again, to compare the results obtained by this method with the estimates placed upon the value of the railroad by the investing public. If all the issues of stocks and bonds of a given railway are taken and the prices at which they are sold at the New York Stock Exchange in a year of normal values are ascertained, a means is obtained for determining what estimate is placed upon the value of these railways by those who in the long run fix values—the persons who buy for investment.

Taking, for instance, the different issues of bonds and stock of the New York, Chicago and St. Louis Railway Company, and determining the value of the entire issues by the average of the quotations at which they were sold on the New York Stock Exchange in the year 1892, it was ascertained that the whole property was worth, in the opinion of investors, about \$28,000,000, and that that part of it which is in Ohio was worth \$13,196,000. Its value as determined by capitalizing its income at 6 per cent was found to be \$7,633,547. It thus appeared to the commission that in this case, at least, no injustice was done to the railway company by the method selected.

The value of the Cleveland and Mahoning Valley Railway Company's property, capitalized at 6 per cent, is \$7,861,336; capitalized at 5 per cent, it is \$9,483,600; determined by the average of quotations upon the New York Stock Exchange for the year 1892 (partially estimated), its property was worth \$8,450,000.

Again, the Lake Shore and Michigan Southern Railway Company was worth, upon the basis of the New York Stock Exchange quotations, about \$109,000,000; capitalized at 6 per cent it is worth about \$110,000,000.

It should further be remembered, the commission said, that it is impossible in the case of many railways to reach any adequate conclusions by determining their values upon the basis of their stock-exchange quotations. For instance, the property of the New York, Pennsylvania and Ohio Railway Company is covered with mortgages securing a bonded indebtedness of about \$90,000,000; its capital stock, amounting to about \$45,000,000, is entirely held by trustees, who are selected by the bondholders under a scheme devised when the road was reorganized in 1880. The common stock of the Baltimore and Ohio Southwestern Railway Company and a large part of the stock of the New York, Chicago and St. Louis Railway Company are owned by the Lake Shore and Michigan Southern Railway Company. In all these cases it is apparent that the selling value of the stock is determined by other considerations than the earning capacity of the railroad. In so far, however, as the stock-exchange valuations can be obtained for the several properties,

the commission says, the figures obtained will bear out the conclusions reached by the other method adopted; namely, the capitalization of the income of the railway companies at 6 per cent.

The commission also obtained statements of the taxes paid in Ohio, the gross earnings and the net earnings of all, or all but one or two, of the railways in Ohio. It also obtained the percentage of mileage in Ohio in those cases where the railway systems run into other States. It has been already stated how the net earnings were obtained. In almost every instance the items of proportionate mileage in the State and of the taxes paid in Ohio were obtained from the auditors or other officials of the several railway companies. By an easy calculation, from this data, it was determined what part of the net earnings arose in Ohio. "It is then possible to make the same comparison which has been made with other classes of investments, namely, what ratio the taxes paid in Ohio bear to the net earnings which arise from the business in Ohio. It will, of course, be understood that net earnings include the interest which is paid upon bonds. In an economic sense bonds are capital; railways are built with the avails of bonds, and in many instances the bonds are the only real capital. To cite a single instance, the bonded indebtedness of the New York, Pennsylvania and Ohio Railway Company is, as stated, over \$90,000,000; the stock of the corporation is about \$45,000,000; the real value of the railway company's property has been estimated by competent experts at \$35,000,000. In this case it is certainly clear that the real capital of this corporation is represented by those issues of bonds which correspond to its true value and which are secured by the mortgages first in priority.

"The following table shows the percentage of taxes paid in Ohio to net income arising in Ohio in the year 1892 by a number of railway companies which are believed to be representative ones:

	Percentage.
Lake Shore and Michigan Southern	11.22
Cleveland, Columbus, Cincinnati and St. Louis	10.63
Pennsylvania system	6.90
The Valley Railway	8.83
Cleveland and Canton	7.05
Cleveland, Lorain and Wheeling	6.89
Cleveland and Pittsburg	8.48
Toledo and Ohio Central	6.54
Columbus, Hocking Valley and Toledo	5.16
Cleveland and Marietta	8.25
Cincinnati, Portsmouth and Virginia	17.94
Baltimore and Ohio Southwestern	6.57
New York, Chicago and St. Louis	11.99
Wheeling and Lake Erie	7.99
Cincinnati, Hamilton and Dayton	9.35
Baltimore and Ohio	6.02

"A large number of the smaller roads are omitted from this table.

"Again it should be remembered that our system of assessing railway property estimates its value by the mile, and that a mile of road through a country swamp is worth as much for taxation as a mile through the heart of a large city. The result is that the railway company pays the low rates prevailing in the country counties on the great bulk of its mileage, and the high rates of the large cities only on a small fraction thereof.

"If the principles set forth in the foregoing discussion are correct; if it be true that the proper basis of taxation is ability to pay, and if it be true that the correct rule is proportionality of taxes to income or earning capacity, then it is submitted, from the facts which have been collected, that investments in no other form in Ohio pay in taxes so small proportion of the earnings derived from the investments as do the investments in railway corporations. While investments in improved real estate in Cleveland and elsewhere pay from 16 to 25 per cent of their gross rentals in taxes; while banks pay 20 per cent or more of their net income in taxes; while investment securities are taxed at the ratio of 60 to 70 per cent of their income; while street-railway companies, at least in Cleveland, pay 25 per cent of their net income in taxes, investments in railway property do not pay nearly so much proportionately. Few railways of the State pay as much as 10 per cent of their net earnings in taxes, while the great majority pay only from 6 to 8 per cent.

"To sum up the conclusions derived from these considerations: It is found that the railways of the State are assessed for taxation at only \$105,000,000; that the railways, so far as they can be identified, were assessed upon a higher valuation

in 1878 than they are now; that they only pay from 6 to 10 per cent of their net earnings in taxes, while capital invested in other classes of property pays a much larger percentage of its earnings. If their appraised valuations be compared with their real values, as determined by capitalizing their net earnings at 6 per cent, it is found that the appraised valuation is not more than 25 to 33 per cent of their real values. While it is true that land is appraised at less than its real value in various parts of the State, yet in no considerable section is the percentage of undervaluation nearly so low as this."

Applying the methods of the Ohio tax commission and capitalizing at 6 per cent the net income of railroads in Ohio, which was \$19,703,720 in 1898, we find the true value to be \$328,378,606. The total taxes paid in 1898, including the new excise tax, were \$2,958,852.87, making the rate of taxation on such valuation a little more than 9 mills.

Applying the rule adopted by the tax commission to the net earnings and taxes of all Ohio railways for 1899, as reported by the State commissioner of railroads, we have the following:

Total net income	\$21,101,792.89
Total taxes paid	8,025,407.74

Percentage of net income, 14.83, about one-seventh.

Mr. F. C. Howe, referring to the subject, says: "While the burdens of other property have increased in recent years, the valuations on railroad property have either diminished or become stationary."

As indicative of the truth of this statement, Mr. Howe produces the following statistics of assessments and gross earnings of six railroad systems lying wholly within the State of Ohio, which he says are in no sense exceptional:

	1885.	1890.	1896.
Earnings	\$4,496,423	\$6,097,131	\$10,266,465
Assessment	8,944,836	10,166,174	10,000,328

These show that while gross earnings increased in eleven years over 200 per cent, the assessments increased little over one-tenth.

Mr. Howe says, further, that the same disparity has been found to exist in the case of all roads that have been examined in that State, and that not only has the assessment of railroad values either diminished or remained stationary, while that of other forms of property has increased, but the valuation of the roads is both absolutely and relatively lower than that of any other class of realty in the State.

The restriction of Mr. Howe's comparison to realty is significant and suggests that personalty might afford more just comparison.

In the consideration of new systems of corporate taxation in connection with a prevailing general property tax, it appears to be a common diversion to undertake to demonstrate the justice or injustice thereof by contrasts and comparisons with the taxation of property generally, through methods similar to those above set forth. It may, however, be regarded as questionable whether any such comparison for the purpose of determining upon a just measure of taxation by new and modern methods can be satisfactory or reliable, and whether such attempts are not apt to be entirely misleading.

The rates of taxation under the general property-tax valuations form no reliable or even approximate basis of taxation under a system that is based upon an arbitrary valuation of corporate property, which includes all elements of value, real or fictitious, such as franchises, earnings, earning capacity, stocks and bonds, etc.

The necessity for new systems of taxation of corporations is based upon the assumption that the general property tax is a failure, even in its application to tangible property, both real and personal, and utterly inadequate for the just or reasonable taxation of property of a corporate or intangible character. Consequently, when methods are devised based upon different principles of taxation, it seems unsound and futile to undertake to measure or compare their adequacy by applying to the property under one method a rule of valuation which measures all elements of value, and from which neither value nor property escapes, and comparing it with the taxation of property under another method which only partly values a mere portion of the property to which it is sought to be applied.

The rules of valuation under these new methods and the rates of taxation under the old can not form any reliable basis of comparison as to taxation yields. Such comparison in the end is the wildest guesswork. New methods must be considered independently, both as to valuation and rates, to determine their efficiency and the adequacy of taxation burden.

Viewed in this light, the conclusions of the Ohio tax commission and the results of all similar methods of investigation appear less startling and of questionable worth.

The conclusion that a great class of corporate property, peculiar in character and uncertain and fluctuating in value, under a method of valuation impossible of correct application, is assessed at one-third of its real value, as determined by an arbitrary method based upon the uncertain earning capacity of a prosperous period, should be viewed in the light of the facts that other property in large part escapes taxation entirely, is subject to important exemptions, and the portion that reaches the tax roll is greatly undervalued. Then the justice of rates of taxation may be intelligently considered.

When the statement is made that a class of property, upon a valuation of \$328,878,606, based upon earning capacity, pays a tax of 9 mills upon each dollar, if we try to regard it in comparison with property in general, subject to a tax rate of 2½ per cent, the theorist is apt to deduce erroneous conclusions unless he first discovers some method for determining the earning value of all existing tangible property, the exact amount of moneys, all the deposits, the face value of all mortgages, the earning power of bonds, stock, and all interest-bearing or dividend-sharing securities and investments, franchise values, the value of business reputation and good will, in short, all the manifold forms of value existing under modern conditions, to complete the comparison.

An illustration of the results of comparison of taxation rates under different methods of valuation will be found under the head of "excise tax on electric light and gas companies, etc."

TELEGRAPH, TELEPHONE, AND EXPRESS COMPANIES.

These companies are taxed under an act known as the Nichols law. They are required to file annually with the State auditor a sworn statement showing name and nature of company, location of principal office, names and addresses of officers, number of shares of capital stock, the par and market value, or if no market value, the actual value of the shares, real estate owned in Ohio and the value thereof, personal property in Ohio, including moneys and credits and the value thereof, total value of real estate and personal property outside the State, length of lines within and without Ohio, and in the case of telegraph and express companies the gross receipts for the year, from whatever source derived, from each office in Ohio, and the total gross receipts within the State; and such other information as may be required by the State auditor, upon blanks provided by him. The State auditor, State treasurer, and attorney-general constitute a State board of assessors, which meets and proceeds to ascertain and assess the value of the entire property of such companies within the State in the proportion which the same bears to the entire property of such companies, being guided by the value of their capital stock and such other evidence and rules as will enable it to arrive at the true value in money.

This value is apportioned by the State auditor among the various counties through which the lines of such companies run in proportion to the value of the property therein and in the proportion that the mileage in the respective counties bears to the total mileage within the State, and the amounts so apportioned are in turn placed upon the duplicates of the minor divisions of the counties and taxed with other property at local rates.

The valuation of the property of telegraph companies by the board for the years 1898 and 1899 was as follows:

Company.	1898.	1899.
Postal Telegraph Cable	\$306,693	\$312,768
Western Union Telegraph	2,108,073	2,099,401

Express companies are required to make statements similar to those required of telegraph companies, their property is valued by the same board, and after

deducting the value of real estate taxed locally, is apportioned by the State auditor among the various counties in which the company does business, in the proportion that the gross receipts in each county bear to the total gross receipts within the State.

The valuation of the board for the years 1898 and 1899 was as follows:

Company.	1898.	1899.
Adams Express	\$314,662	\$357,534
American Express	272,518	362,638
National Express	84,009	33,741
Pacific Express	10,521	10,527
Southern Express	11,398	11,416
United States Express	277,938	300,626
Wells-Fargo Express	87,481	83,822

The constitutionality of this act was tested in the case of the Adams Express Company v. Ohio State Auditor, and its constitutionality was sustained by the supreme court (51 O. S., 492), and on appeal by the Supreme Court of the United States (165 U. S., 184), Justices White, Field, Harlan, and Brown dissenting.

The latter decision on the taxation of quasi-public corporations of an interstate character was an exceedingly important one. The court held in substance as follows:

The transportation of the subjects of interstate commerce, or the receipts received therefrom, or the occupation or business of carrying it on, can not be directly subjected to taxation, yet property belonging to corporations or companies engaged in such commerce may be, and whatever the form, if it is essentially only property taxation, it is not within the inhibition of the Constitution.

It has often been held that the property of railroad, telegraph, and sleeping car companies, engaged in interstate commerce in the several States through which their lines may pass, may be valued as a unit for the purpose of taxation, taking into consideration the uses to which it is put and all the elements making up aggregate value, and a proportion of the whole, fairly ascertained, may be taxed by a particular State without violating any Federal restriction.

It has been decided that a proper mode of ascertaining the assessable value of so much of the whole property as is situated in a particular State, as in the case of railroads, is to take that part of the value of the entire road which is measured by the proportion of its length therein to the length of the whole, or taking as the basis of assessment such proportion of the capital stock of a sleeping-car company as the number of miles of road over which its cars run in a particular State bears to the whole number of miles traversed by them in that and other States; or such a proportion of the whole value of the capital stock of a telegraph company as the length of its lines within a State bears to the length of all its lines everywhere, deducting a sum equal to the value of its real estate and machinery subject to local taxation within the State.

Property, tangible and intangible, in one State possesses a value in combination and from use in connection with property and capital elsewhere which can rightfully be recognized in the assessment for taxation.

The whole property of such a company constitutes a single plant—a unit.

Such tax may fall upon the business of a company indirectly, but it is essentially a property tax, and as such not an interference with interstate commerce.

The earlier decisions of the Federal courts had created great confusion in the practical methods for the taxation of total State earnings or franchise values of transportation, transmission, and other companies of an interstate character by individual States, in some instances preventing the adoption of modern methods of taxation and in others reflecting grave doubt upon the validity of existing methods. Consequently, as the consolidation of such companies extended and the earnings from interstate traffic increased, such values were frequently inadequately taxed or relieved from taxation altogether. The different States were therefore impelled to the adoption of devices for the purpose of adjusting themselves to the Federal decisions, and the varying methods adopted for the taxation of such companies by different States have resulted in an exceedingly chaotic condition and in the absence of unity, reason, or design. Licenses, gross-receipts tax, and capital-stock tax are found separately or in conjunction with the general property tax, in some cases assessed by State boards, in others by boards of county

assessors, and in others by assessors of individual counties, proportionately or otherwise.

This condition resulted in inequality, discrimination, undervaluation, and escape of such property almost as serious as in the case of other forms of property under the general property-tax system.

This is brought out in the opinion of the court above cited, which gives the relative valuation of express companies in Ohio under the former rule assessing tangible property, including moneys and credits, but not real estate, and the existing one for assessment of all property, including franchise, under the unit rule.

Company.	Former rule.	Unit rule.	Gross receipts in Ohio.
Adams Express.....	\$42,065	\$633,095	\$232,181
American Express.....	23,430	499,274	275,446
United States Express.....	23,433	433,264	358,519
Total	98,933	1,520,633	916,146

It will be observed that the valuation under the present plan is 16 times more than under the former.

The average rate of taxation in the State for 1899, to which this value together with the value of the real estate of these companies was subjected, was 2.46 per cent.

This plan, under the decision referred to, may be greatly developed, adjusted to modern industrial conditions, and applied to the various and growing corporations whose values are represented not by real estate and tangible personal property, but by franchise values, the whole value being measured by bonds and capital stock or earning capacity; and thereby such property may be easily subjected to fair, certain, and adequate taxation, to the relief of real estate and personalty generally.

Through this general method a State, by taxing all that to which corporate earnings give value, may indirectly reach traffic of an interstate character. This plan appears now to enable all public-service corporations, so called, to be placed on a basis of taxation representing their entire value, and reaching franchises as well as other forms of property.

Express companies are probably more heavily taxed than any other class of corporations in Ohio. They are subjected to 3 separate and distinct taxes.

First. The ordinary local tax levied upon the real estate of such companies where located.

Second. A tax in the nature of a local tax by what is termed the "unit rule" of valuation, determined in like manner to that of telegraph and telephone companies.

Third. An excise tax for State purposes only, based upon gross receipts. Each company is required to file annually with the auditor of the State a sworn statement upon blanks furnished by the State auditor showing—

- (1) The name and nature of the company and names of officers.
- (2) The entire receipts (including all sums earned or charged, whether actually received or not) for business done within the State, of each agent doing business within the State for and on account of such company, including its proportion of gross receipts for business done by such company within Ohio in connection with other companies; also the total amount of such receipts for business done within the State.
- (3) An itemized statement of the amounts actually paid by such express company to the railroads within the State for the transportation of its freight within the State, showing the amount paid to each railroad company.
- (4) The entire receipts of the company for business done within Ohio, as defined in the second item, after deducting the amount paid for transportation of freight, as defined in the third item.

The State auditor, State treasurer, and attorney-general constitute a State board of appraisers and assessors, who proceed to ascertain and determine the entire receipts, as defined in the second item, after deducting the sums paid for transportation of freight, as defined in the third item, and the amount so ascertained is held and deemed to be the gross receipts of such express company for business done within Ohio.

The State auditor charges and collects from such express companies 2 per cent of such gross receipts, such excise tax being paid into the general fund of the State. The excise taxes for the years 1898 and 1899 were as follows:

Company.	1898.	1899.
Adams Express	\$2,384.58	\$3,071.12
American Express	2,424.96	2,620.74
National Express	198.92	237.70
Pacific Express	69.54	70.12
Southern Express	114.04	122.26
United States Express	4,049.80	3,921.38
Wells-Fargo Express	911.12	961.46
Total	10,602.46	11,004.78

SLEEPING, PALACE, CHAIR, DINING, AND BUFFET CARS, AND FREIGHT LINE AND EQUIPMENT COMPANIES.

In 1894 an act for the taxation of sleeping, palace, chair, dining, or buffet car companies was passed, known as the Griffin law.

Sworn statements are required showing, among other things, the number of shares of capital stock, their par or market value, description and value of real estate, the whole length of lines of railway over which their cars run, and the length of such lines within the State of Ohio.

The State board of appraisers and assessors, consisting of the State auditor, State treasurer, and attorney-general, thereupon determine the amount and value of the capital stock, the tax being based on "the proportion of the capital stock of the company representing rolling stock which the miles of railroad over which such company runs cars in Ohio bears to the entire number of miles in Ohio and elsewhere over which such company runs cars, and such other rules and evidences as will enable the board to determine fairly and equitably the amount and value of the capital stock of such company representing capital and property owned and used in Ohio."

Real estate assessed and taxed locally is deducted from the valuation.

The State auditor charges and collects an excise tax of 1 per cent of the valuation reached by the above means, the amount so collected being paid into the State treasury.

These provisions were subsequently applied to freight line and equipment companies, statements suitable to such companies being required for the determination of the proportionate value of the stock, and the excise tax being collected in like manner, for like purpose, and at the same rate.

The taxes under these laws were as follows:

Company.	1898.	1899.
Pullman Palace Car	\$3,699.66	\$4,420.17
Wagner Palace Car	2,214.00	2,214.00
Freight line and equipment companies	7,689.57	7,738.41
Total	13,603.23	14,372.58

EXCISE TAX ON ELECTRIC-LIGHT AND GAS COMPANIES, ETC.

Electric-light, gas, natural-gas, pipe-line (for natural gas or oil), waterworks, street-railroad, and messenger or signal companies are required to file with the State auditor annually a sworn statement showing, among other things, the entire gross earnings of the company (including all sums earned or charged, whether actually received or not) for business done within the State, including the company's proportion of gross receipts for business done by it within the State in connection with other companies. The State board of assessors and appraisers thereupon determines the entire gross receipts of such companies for business done in Ohio. An excise tax of one-half of 1 per cent is levied and collected by the State auditor and paid into the general revenue fund of the State. This taxation is in addition to the ordinary assessment and taxation of the tangible property of such companies.

Such taxes in 1898 and 1899 were as follows:

Character of business.	1898.	1899.
Electric-light companies.....	\$12,089.87	\$12,802.46
Gas companies.....	20,875.23	20,566.24
Natural-gas companies.....	8,192.20	10,694.82
Pipe-line companies.....	88,818.08	87,232.49
Waterworks companies.....	2,250.84	2,168.77
Street-railway companies.....	47,807.02	49,869.67
Messenger and signal companies.....	788.18	799.64
Total.....	125,820.82	184,848.09

The utter inadequacy and injustice of the general property tax as applied to this class of corporate property appears from an examination of the assessments of several Ohio street-railway companies given below, taken from the local tax duplicates, the actual value being obtained by adding the market value of the stock to the par value of the bonds as obtained from stock-market quotations. It is believed that even greater discrepancy would be shown in the case of gas and electric companies.

Company.	Assessment, 1898.	Actual value.
Cleveland Electric Railway.....	\$1,121,820	\$9,870,000
Cleveland City Railway.....	678,480	6,560,000
Columbus Street Railway.....	419,700	4,802,000
Cincinnati Inclined Plane Railway.....	65,890	955,000
Cincinnati Street Railway.....	687,760	18,140,000
Total.....	2,923,130	40,827,000

The valuation under the former assessment at an average rate of taxation of 2.5 per cent would yield \$78,078 in taxes. To raise the same amount on the actual valuation would impose a rate of taxation of only 0.18 per cent.

The latter valuation at a rate fixed at 0.005 would yield a tax of \$201,685 on the same property.

COLLATERAL INHERITANCE TAX.

A tax of 5 per cent is imposed upon collateral inheritances above the sum of \$200, of which 75 per cent is paid into the general revenue fund of the State and the balance is received by the county in which such tax is imposed.

In 1898 the State received from this tax \$24,159.02; in 1899, \$17,547.02.

LIQUOR AND CIGARETTE TAXES.

The State received from liquor and cigarette license taxes in 1898 and 1899 the following amounts:

	1898.	1899.
Liquor traffic taxes.....	\$1,024,324.89	\$1,068,285.08
Cigarette traffic taxes.....	18,460.73	13,643.68

INDIANA.

In this State we find established the general property tax system—the attempt to subject all property to taxation by means of one uniform tax on all classes of property.

During the last decade a persistent effort has been made through legislation and the improvement of the assessing machinery of the State to perfect this system, bring it into harmony with modern economic conditions, and apply it equitably to all forms of property. The keynote of the application of this system is the assessment of all property at its actual cash value, following the rule laid down by the United States Supreme Court in a case from Indiana familiar to all its assessing officers, that “what property of any kind, corporate or individual, tangible or intangible, is worth for income or sale, it is worth for taxation.”

Methods for assessment of various kinds of property are fixed by law in minute detail.

There is little distinctive or new in the system as established, but there has been an organized effort on the part of the legislature and taxing officials to secure greater uniformity of assessment, discovery of property and correct valuation thereof, and modification of competitive undervaluation by local assessors.

It was designated by one public official as “a practical business system, and not a hotchpotch;” but this statement must be regarded as applicable to the system for assessment by taxing officials rather than to the system of taxation as a whole. The system of assessment in actual practice comprises the township or ward assessor; the county assessor, elected to devote his entire time to the supervision of local assessments; the county board of review, which assesses the property of certain corporations for county purposes, and to which appeal lies from the assessment of township assessors; and a State tax commission, the head of which is the governor of the State, which assesses the property of quasi-public corporations and has supervision over county assessments, and to which appeal lies from county boards.

The valuation of the property of railroads and other public-service corporations, so called, for the purpose of taxation, is determined by the State board and apportioned among the several counties of the State in which such property is located, according to mileage, for entry and taxation with other local property at a uniform rate. This board, in compliance with the mandatory provisions of law, aims to value the property and capital stock of such corporations at its full market value upon the basis of earning capacity.

Through these varied methods of valuation it is designed to bring all the property of each county upon the tax duplicate at its full value, and to extend the taxes at a uniform rate for State, county, and local purposes.

The revision of the system in 1891 was calculated to bring about a reform in the execution and enforcement of the tax laws for the valuation of property, rather than a material change in the system of taxation.

The provisions of the Indiana tax laws have been frequently assailed in the courts, and in the main sustained, so that there is now little question as to the right and authority of taxing officers to assess and tax all forms of property as provided in the laws.

The law of 1891 provides that all taxes shall be assessed on polls and property, listed and valued in an equal and ratable proportion, except such stocks and other property as may be specifically taxed.

The amount necessary to be charged for State expenditures and school purposes is fixed by law, and the amount to be charged for county expenditures is determined by the board of county commissioners.

The amount of taxes raised in 1899 for State and local purposes was about \$20,000,000.

It has been held that the constitution does not require a uniform method of valuation of property for taxation, but only such method as will insure a just valuation; and further, that it is not necessary that the rate of taxation shall be uniform throughout the State, but it is only required that the rate of assessment and taxation shall be uniform and equal throughout the locality in which the tax is levied.

The law requires a poll tax to be assessed upon every male inhabitant of the State between the ages of 21 and 50 years. The levy fixed by the legislature for State purposes is 50 cents for the general fund and 50 cents for the school fund on every poll. The amount of poll tax in 1899 was \$560,888.

GENERAL PROPERTY TAX.

All property not expressly exempt is subject to taxation. What shall constitute real or personal property for taxation is specifically defined. Little need be said as to the taxation of real property. It includes all lands within the State and all buildings and fixtures thereon and appurtenances thereto, except in cases otherwise expressly provided by law. This class of property is assessed by the local assessors, and for the purpose of assessment is divided into four separate classes, viz.: Lands, improvements on lands, city or village lots, improvements on city or village lots. Mortgaged real estate is assessed to the mortgagor while in his possession, and at its full value, with the following exception:

In 1899 a law was passed by which the owner of land may have the amount of any mortgage thereon not exceeding \$700 and not more than one-half of the assessed valuation of the land deducted from the assessed valuation of such mortgaged premises. Such mortgagor is required to make a statement showing the name and residence of the mortgagee, which is used by assessors for the purpose of taxing the mortgagee.

The amount of deduction in the State under this law in 1900 was \$29,159,981, while the total gain of taxable property, exclusive of mortgage deductions, was \$31,728,152, or a net gain of \$2,568,221.

The total valuation of real estate in 1899 was \$860,365,972, or about 2½ times the valuation of the personal property, and the average rate of taxation was, roughly speaking, \$1.50 on each \$100 valuation.

PERSONAL PROPERTY.

Personal property, for the purpose of taxation, includes all visible personalty within the State belonging to inhabitants; all such property belonging to inhabitants of the State but situate without the State, except the property actually and permanently invested in business outside the State; all indebtedness of every kind due to inhabitants of the State above the amounts respectively owed by them; all shares in corporations organized under the laws of the State, when the property of such corporation is not exempt or is not taxable to the corporation itself; all shares in banks organized in the State, deducting the value of real estate taxed to the bank; all shares in foreign corporations, except national banks, owned by inhabitants of the State; all moneys, including notes and certificates, circulating as currency; all annuities and royalties.

It is the express purpose of the law throughout to enable assessors to reach for taxation all property belonging to inhabitants of the State in whatever form it may exist or wherever it may be located, at its full value. Methods for the discovery and valuation of property are provided with much detail, and these provisions have been generally sustained by the courts.

It has been held to be within the legislative power to make money, stocks, and choses in action outside the State and belonging to residents of the State taxable in the State, and where a business of buying and selling property, making loans and investments is conducted and the notes and mortgages so used retained in the State, although the owner thereof may have his residence in another State, the property and business are subject to taxation in the State whether such business is conducted by the owner or his agent.

Corporate stock and franchises, except where some other provision is made by law, are assessable locally at full value, but shares in corporations all the property of which is assessed to the corporation, are relieved from taxation in the hands of the shareholders.

Obligations secured by real-estate mortgages are regarded as personalty, and assessed to the owners as credits at full value and local rates.

There seems to be a united and determined effort to bring notes secured by mortgage and other obligations and credits upon the rolls. Through the individual listing of obligations by creditors and debtors, the cooperation of local and State boards, record evidences of mortgages, and other means, assessors seek to discover as much as possible of this class of property and subject it to taxation. For this purpose rigorous power is given to the assessors for the discovery and listing of such property, and inquisitorial methods are provided by law.

There is a law requiring the assignment of mortgages to be placed on record within 45 days. It has been declared by the supreme court to be a settled law that township assessors, county assessors, the auditor of State, boards of review, and the State board of tax commissioners, for the purpose of listing property for taxation, have the right to inspect and examine the records of all public offices and the books and papers of all corporations and taxpayers in the State, and may enforce such right by writ of mandamus; and that the county auditor may maintain an action on the part of his county to set aside the final settlement of a decedent's estate within 8 years, and subject such estate to the payment of taxes on property fraudulently concealed by the decedent in his lifetime. Thus the sin of the tax dodger committed during his lifetime may be atoned after his departure from the "Hoosier" to a taxless state.

In 1899 the supreme court affirmed a judgment of \$1,800 recovered by the officers of a county as a penalty on account of the returns of false and fraudulent schedules of property for taxation.

It has even been advocated by assessors, the governor concurring in the suggestion, that all notes be made by law uncollectable in the courts unless they bear upon their face the stamp of the tax assessor.

Interstate cooperation, for the purpose of facilitating the discovery and assessment of mortgages and other sequestered obligations, has also been suggested by State tax officials in their conferences.

There has been established a system of deductions of indebtedness of taxables from the various forms of credits, undue advantage of which, according to statements of officials, is to a great extent taken by owners of that class of property, thereby taking from the tax duplicates a great deal of property that should be taxed.

The total valuation of personal property in 1899, including property and capital stock of domestic corporations and all shares in banks, was \$315,540,675.

The provisions for the discovery and assessment of personal property being a distinguishing and important feature of the Indiana system of taxation, it is essential to set forth the methods employed.

For the purpose of properly listing and assessing property for taxation and equalizing and collecting taxes, the township assessor, county assessor, board of review, auditor of State, and State board of tax commissioners each have the right to examine and inspect the records of public offices and books and papers of all corporations and taxpayers in the State, and all assessors and other officers charged with the duty of listing property for taxation are required to give in writing all information they may obtain regarding the concealment of property from taxation by any person or corporation to the county auditor or board of review, to the auditor of State or State tax commissioners.

Each taxable is required to give a minute detailed statement of all the various items of personal property owned or held in trust by him, the blank schedule provided for that purpose containing 100 different items, and to affix what he deems the true cash value to each item for the guidance of the assessor.

The determination of the valuation of each item is made by the assessor, who may, if he deems it necessary, examine the taxable under oath, and must be governed by what is the true cash value, particularly defined to be the market or usual selling price at the place where the property is, and if there be no market value, the actual value governs.

Every company, association, or person not incorporated for banking purposes who engages in the business of lending money, receiving money on deposit, buying or selling bills of exchange, notes, bonds, or stocks, or other evidence of indebtedness, with a view to profit, is required each year to furnish the assessor a detailed statement of his business and property, to be listed for taxation in a manner specially provided.

Severe penalties are imposed for false statements, and any prosecuting attorney, upon notification of such statement, is required to prosecute the offender to final judgment and execution, receiving himself, in addition to his regular compensation, 10 per cent commission on all money so collected and a docket fee of \$10 to be taxed against the offender. In case any taxable refuses to make out a statement or subscribe to any oath required, the assessor ascertains as best he may the number and description of articles and property belonging to him, and the value thereof, and the county auditor adds to such valuation 50 per cent thereof.

For the purpose of listing and assessing property for taxation an assessor is elected in each township for a term of 4 years, whose duty it is to assess the real and personal property in his township as particularly provided by law, except that assessed by the county assessors or State board, as hereafter set forth. All

real estate is assessed once in 4 years, and each year the assessor assesses any improvements made thereon and notes and lists all changes found since the preceding assessment.

He also assesses all the personal property he can discover by the rigorous methods specially provided, except capital stock, which is assessed by the county board, and property of quasi-public corporations, assessed by the State board.

The returns of these local assessors are made to the county auditor, who, if satisfied that any real estate or personal effects have been omitted, may authorize and require the proper assessor to correct any error or omission, but can not increase the assessment of property as returned, although purposely undervalued.

Once in every 4 years a county assessor is elected in each county, who is not eligible for reelection more than twice in any term of 12 years, and who devotes his entire time to the duties of his office. Such county assessor receives all returns of real and personal property made by the several local assessors in the county, together with the assessment lists, securities, statements, maps, and other papers filed, and it is his duty to make a careful examination of the tax duplicates of the county, and also of all other records and papers in the offices of the county auditor, treasurer, recorder, clerk, sheriff, and surveyor, local assessors' books, all omitted assessable property of every kind or nature, including tax certificates, mortgages, debts, judgments, claims, and allowances of courts, legacies, and property in the hands of administrators and other trust officers, and for that purpose has all the rights and powers given by law to local assessors for the examination of taxables and their property and the discovery and assessment of the same, and he may list and assess any omitted property that he may so discover at any time during the year. Such county assessor is also required to advise and instruct all township officers in his county as to their duty under the laws, and for that purpose must visit each local assessor each year. In short, the county assessor has supervision over all local assessors and their work, with full power to list and assess upon the rolls all property omitted by the assessors under him; and he and the local assessors constitute an organized force for the discovery and assessment of property.

There is also an annual county board for the review of assessments and valuation of real estate and personal property in each county, composed of the county assessor, county auditor, and county treasurer, with 2 freeholders appointed by the judge of the circuit court, the county assessor being president and the county auditor secretary of said board of review. Such board has power to hear complaints of any owner of personal property except "railroad track" and "rolling stock," to equalize the valuation of property, and to correct any list or valuation as it may deem proper and necessary to fix the assessment at its true cash value.

It corrects all errors in names of persons, descriptions of property, and the assessments and valuations thereof, and causes to be done whatever may be necessary to make the lists and assessments comply with the law, and where it appears that any property owner had bona fide indebtedness, the same is deducted from the amount of his credits listed in the county, and he is assessed only on the residue of his credits fixed by the board of review.

It is also the duty of this board to inquire as to the valuation of the various classes of property in the respective townships and divisions of the county and make such changes as may be necessary to equalize the same as between the townships, but it has no power to reduce the aggregate valuation of all the townships below the true cash value nor to increase the same beyond the amount actually necessary for a proper and just equalization. It is also the duty of the board to value and assess for taxation the capital stock, franchises, and privileges of certain private corporations, as hereinafter set forth under the head of corporate taxation.

There is also a State board of tax commissioners, consisting of 2 skilled and competent persons, not more than 1 from the same political party, together with the governor, secretary of state, and auditor of state—the last 3 being ex-officio members, and the governor being chairman. It is the duty of this board—

First. To prescribe all forms of books and blanks used in the assessment and collection of taxes.

Second. To construe the tax and revenue laws of the State and instruct them in relation to their duties with reference to taxation and assessments whenever requested so to do by any officer acting under any other person interested therein.

Third. To see that all assessments of property are made according to law.

Fourth. Especially to see that all the railroads and other corporations of the State are assessed and taxed as provided by law.

Fifth. To see that all taxes due the State are collected.

Sixth. To enforce penalties prescribed by any revenue law of the State for disobedience of its provisions.

Seventh. To determine, whenever necessary, the amount required to be levied upon property in the several counties to cover any deficiency in the State revenue not otherwise provided for.

Eighth. To examine all books and accounts and all persons necessary to enable it to obtain all information required to aid in securing a compliance with the tax laws by all persons or corporations liable to taxation.

Ninth. To make such rules and regulations as it may require.

Tenth. To report to the general assembly at each session the amount of revenue collected in the State for all purposes, classified as to State, county, township, and municipal purposes, with the sources thereof, and such other matters of information concerning the public revenues as it deems of public interest.

Eleventh. To make investigation concerning the revenue laws and assessments of other States and countries, and with the aid of information thus obtained and of its own experience and observation to recommend to the general assembly, at each session thereof, such amendments, changes, or modifications of revenue laws as it may deem advisable.

Twelfth. To see that each county of the State is visited at least by 1 member of the board as often as once each year to hear complaints and collect information concerning the workings of the tax laws. Said board, or any member thereof, has the power to subpoena and examine witnesses, and has access to and power to order the production of any books or papers in the hands of any person or corporation whenever necessary in the prosecution of any inquiry made in an official capacity.

Any taxpayer who may be dissatisfied with the action of the county board of review has the right to appeal from such board to the State board, and in like manner any township or county assessor or member of the county board has the right to appeal to such State board from any assessment or order of the county board. It is also the duty of the State board, and it has exclusive authority, to value and assess for taxation all railroad property denominated for that purpose "railroad track" and improvements thereon and "rolling stock," and all property belonging to telephone, telegraph, palace car, sleeping car, drawing-room car, dining car, express and fast freight, and other associations transacting business in the State, and for that purpose, and to hear appeals and applications for revisions and assessments and equalize assessments of real estate, the board is required to convene annually at a stated time.

CORPORATE TAXATION.

Having completed the description of the main features of the tax system of Indiana relating to the assessment of real and personal property generally, the discovery and listing thereof, and the assessing machinery of the State from the local township assessor to the State board of tax commissioners, we turn now to the subject of general corporation taxes.

As we have already observed, there is no distinct or separate system for the assessment and taxation of such property, it being a part of and mingled with the general property tax system of the State.

The laws for the assessment and taxation of corporate property are designed to reach and bring it all upon the tax rolls with all other property, upon the same basis of valuation and the same local rates of taxation, the practical result depending upon the judgment and action of the local assessors.

The real estate and tangible personal property of corporations, except as specially provided for by law, are assessed and valued for taxation by local assessors, the same as other real and personal property of their respective localities, and the capital stock and franchises by county boards.

While substantially all classes of corporate property are valued and assessed upon the several county rolls and extended for taxation with other property at the same rate, we shall consider each separately.

BANKS.

The shares of capital stock of any bank are assessed to the owners where the bank is located and taxed at the rate at which other personal property in the same locality is taxed. The officers of each bank are required each year to make out a statement under oath, in duplicate, showing the number of shares of capital stock, true cash value of each of said shares, and also the true cash value of the entire capital stock of the bank, and such bank stock is thereupon listed and assessed in all respects the same as similar property belonging to other corporations and individuals. Real estate and other tangible property assessed to the

bank is deducted from the valuation of the capital stock. In making such statement of the true cash value of shares the credits are given and the bona fide indebtedness of the bank deducted therefrom, as in the case of individuals.

The assessor, in determining the cash value of the shares of stock, may examine the officers under oath, and in fixing such value is governed by the market or usual selling price of such stock at private sale at the place where the bank is located, and if there is no market value, he otherwise determines the actual value, taking into consideration the surplus and profits, if any. Taxes on such shares are required to be paid by the owner in the place where the bank is located, in the same manner that other individuals or corporations pay taxes, and it is made the duty of each bank, after being notified to do so, to retain so much of any dividends belonging to stockholders as shall be necessary to pay any tax levied upon their stock, until it is made to appear that such taxes have been paid.

This class of corporate property being mingled with other property upon the county duplicates and taxed at a uniform rate, we are unable to give a separate valuation thereof or the amount of taxes paid upon it in the State. It is included in the assessed valuation of personal property, which in 1899 was \$315,540,675.

FOREIGN INSURANCE COMPANIES.

There is a distinct departure from the general system of the State in the taxation of these companies.

Every such company is required to report semiannually to the auditor of state, under oath, the gross amount of all receipts received in the State on account of insurance premiums for the 6 months preceding, and at the time of making such report pay into the treasury of the State the sum of \$3 on every \$100 of such receipts, less losses actually paid within the State.

The yield of this tax in the year ending July 1, 1899, was as follows:

From fire companies	\$57,695.77
From life companies	93,172.77
Total	150,868.54

The total amount paid by such companies for the year ending July 1, 1900, was \$167,849.59.

FOREIGN BRIDGE COMPANIES.

Every foreign bridge company doing business in the State is required to report to the assessor of the county in which any part of its business is carried on, under oath, the gross amount of all moneys received and a list of its tangible property within the county, and true cash value thereof. The amount of such gross receipts, together with the true cash value of such tangible property, is entered on the tax duplicate of the proper county, and the taxes so assessed become a lien upon the property until paid.

GENERAL DOMESTIC CORPORATIONS.

Every street railroad, waterworks, gas, manufacturing, mining, gravel road, plank road, savings bank, insurance, and other association incorporated under the laws of the State (except railroad companies and others especially designated) is required each year, in addition to the tangible property to be listed, to make and deliver to the local assessors a sworn statement of the amount of its capital stock, setting forth particularly—

- First. The name and location of the company or association.
- Second. The amount of capital stock authorized, and number of shares.
- Third. The amount of capital stock paid up.
- Fourth. Market value, or if no market value, the actual value of the shares.
- Fifth. Total amount of indebtedness except that for current expenses, excluding from such expenses the amount paid for the purchase or improvement of property.
- Sixth. The value of all tangible property.
- Seventh. The difference in value between all tangible property and the capital stock.
- Eighth. The name and value of each franchise or privilege owned or enjoyed by such corporation.

Such statement is scheduled and returned by the assessor to the county auditor, who lays the same before the county board of review, which values and assesses the capital stock and all franchises and privileges of such companies within the county in the manner provided, and the auditor computes and extends the taxes

for all purposes on the respective amounts so assessed, the same as on other property in the towns, cities, or other localities where such companies are located.

Where the capital stock so valued exceeds in value that of the tangible property listed for taxation, it is subject to taxation upon such excess of value; where no tangible property is returned or found, and the capital stock has a value, it is assessed for its true cash value, but where the capital stock or any part thereof is invested in tangible property returned for taxation, such capital stock is not assessed to the extent that it is so invested. Every franchise or privilege of the corporation is likewise assessed at its true cash value.

Where the full value of any franchise is represented by the capital stock listed for taxation, then such franchise is not itself taxed; but in all cases where the franchise is of greater value than the capital stock, then the franchise is assessed at its full cash value, and the capital stock in such case is not assessed.

In case of the failure or refusal of any person or company to make such statement, the auditor of State is required to make out such statement and valuation from the best information he can obtain, and for that purpose has power to summon and examine under oath any person whom he may believe to have a knowledge thereof, and is required to add 25 per cent to such valuation.

The property of these corporations, including their capital stock, is included in the personal property valuation and assessment.

RAILROAD PROPERTY.

Every railroad company is required to cause its taxable property to be listed annually with reference to its amount, kind, and value. It is required to make and file with the county auditors of the respective counties in which the railroad is located a statement or schedule, verified by oath, showing the property held for right of way and the length of the main and all side and second tracks and turn-outs in such counties and in each city and town through which the road runs, and also to state the value of improvements and stations located on the right of way.

Such rights of way, including the superstructures, main, side, or second tracks, and turn-outs, and telegraph poles, wires, instruments, and other appliances, with the stations and improvements on such right of way (excepting machinery, stationary engines, and other fixtures, which are considered personal property) are held to be real estate for the purpose of taxation, and are listed and valued as "railroad track."

The value of "railroad track" is listed and taxed in the several counties, townships, cities, and towns in the proportion that the length of the main track in such local division bears to the whole length of the road in the State, except the value of the side or second track and all the turn-outs, station houses, depots, machine shops, or other buildings belonging to the road, which are taxed in the county, township, city, or town in which the same are located.

The movable property belonging to a railroad company is held to be personal property, and denominated for the purpose of taxation "rolling stock;" it is listed and taxed in the several townships, cities, and towns in the proportion that the main track used or operated in each local division bears to the length of the main track used or operated by such company.

All real estate other than that denominated "railroad track," with improvements thereon, is listed as "land" and "lots," as the case may be, in the county and township, town, or city where the same is located.

Each company is also required to return annually to the county auditor a verified list or schedule containing—

First. A full and correct detailed inventory of all the rolling stock belonging to, leased, or operated by such company, setting forth the number of locomotives and tenders of all classes, passenger cars, and all other kinds of cars, and the true cash value thereof set opposite each, and also to set forth the number of miles of main track on which such "rolling stock" is used in the State.

Second. A full and correct inventory of all the other personal property not specifically taxed, including the tools and machinery for repairs, and machinery, fixtures, and stationary engines, which property must be classified according to the particular county, township, city, and town in which the same may be, with the true cash value thereof.

Third. An inventory of all the real estate except "railroad track," which shall also be listed as to the amount, kind, and value.

The county auditor returns to the proper assessor a copy of so much of said list as is contained in the second and third specifications, and such property is listed and assessed by him as other similar property belonging to individuals.

Each company is also required to return to the auditor of State sworn statements or schedules, as follows:

First. All "railroad track," giving length of main and second tracks and turn-outs, the proportion in each county and township, and the total in the State.

Second. The "rolling stock," with length of main track in each county and entire length of the road in the State.

Third. The number of ties in track per mile, weight of iron or steel per yard used in the main or side tracks, what joints or chairs are used in track, the ballasting of road, number and quality of buildings or other structures on "railroad tracks," length of time iron or steel has been used, and length of time the road has been built.

Fourth. A statement showing—

- (1) The amount of capital stock authorized and the number of shares.
- (2) The amount of capital stock paid up.
- (3) The market value, or, if no market value, the actual value of the shares.
- (4) The total amount of all indebtedness except for current expenses for operating the road.
- (5) The total listed valuation of its tangible property in the State.

Severe penalties are imposed for failure to make the statements or schedules required.

The auditor of State each year lays before the State board of tax commissioners the various statements and schedules made by railroad companies. In assessing railroad property the State board has exclusive authority to value and assess "railroad track" and "rolling stock" as a unit, taking into consideration capital stock and earning capacity. The amounts determined and assessed are apportioned and certified by the auditor of State to the county auditors of counties through which the railroad runs, who enter the railroad property of all kinds as listed for taxation in their counties upon the proper tax duplicates, enter the valuation as assessed, distribute the values to the several townships, cities, and towns entitled to a proportionate value, and against such valuation compute and extend all taxes for which said property is liable, the same as against other property. The county treasurer collects the taxes charged against railroad property in his county and pays over and accounts therefor in the same manner as other taxes are collected and accounted for.

The State board, in fixing the valuation of corporate property for taxation, is not confined for information to the statements of such corporations, but may resort to other available means to obtain information, and for that purpose is given the power and authority to examine persons and papers.

The following quotation from an address of the auditor of State, at a recent conference of tax commissioners, may indicate the spirit in which the valuation of this class of property is made, and an attempt on the part of the State board to make such valuations accord, so far as may be, with the valuation of property in general:

"The law of 1891 affords a basis of computation that places it on the duplicate in line with the values of all other classes of property, just and fair to these large commerce-carrying corporations of the county. The greater portion of the time of the State board is dedicated to the assessment of railroads. There are few if any of these lines but what could duplicate anew their properties within the valuation placed upon them; but there are other elements, such as bonded indebtedness, income, operating expenses, dividends, each or all with the tangible value as the base, which go to make up the value for taxation, always keeping on a parity with every other class of property, for the law contemplates that all assessments shall be kindred in fairness."

When the railroad runs through 2 or more States its value for taxing purposes in Indiana is estimated by taking that part of the value of the entire road which is measured by the proportion of the length in this State to that of the whole road.

The total assessed value of railroad property in 1899 was \$153,693,506. The amount of taxes paid by railroads in the several counties at the average rate of taxation, estimated by State officials at \$1.50 per \$100 of assessed valuation in 1899, was \$2,305,400, or about one-ninth of the total taxation of the State.

The valuation of railroad property in 1890, under the old law, was \$66,206,295, and as other classes of property were also assessed at lower values than under the new law, the rate of taxation was higher. In 1891, under the revised tax law, the valuation of railroad property was increased to \$161,089,169, and the tendency since has been in the direction of a reduction in assessed valuation, as a result of continuous appeals on the part of railroads.

The valuation of railroad property in 1899 was about one-half of that of all the personal property of the State and nearly 18 per cent of that of the real estate.

The present mode of assessing and apportioning "railroad track" and "rolling stock" among counties and the same difference in the modes of assessing such property and other property had their inception in this State in 1858, and have continued, with modifications from time to time, to the present.

It will be observed that the valuation of railroads is apportioned among the several counties through which the roads run in proportion to the mileage in each. Counties containing railroads therefore receive the benefit of railroad taxation according to the values of the road within their borders, and to that extent other property is relieved. Counties containing no railroads receive no direct benefit. The valuation in 1898 ranged from nothing in Brown County to \$9,408,939 in Lake County.

There is one significant result of the taxation of railroads in Indiana somewhat unique in the experience of the States with respect to railroad taxation—that is, a general public feeling that railroads are paying a full proportionate share of the taxes of the State. The complaint in that regard is of overtaxation on the part of the railroads rather than undertaxation on the part of the public.

The system does not seem to be satisfactory to the railroads of the State, but is quite generally regarded by them as crude, cumbersome, and expensive to both State and roads in its operation and inequitable and unjust in its results. It is contended on the part of the railroads that their property is of such a character that its full cash value, based not upon stable qualities alone but also upon changeable fictitious elements of franchise values or earning power, is easily determined, that no value of any kind escapes, and that its taxation at uniform rates with property undervalued and partially valued is therefore unequal and excessive taxation as compared with other taxable property.

It appears that continual complaints are made on behalf of railroads, to assessing bodies, of excessive valuation as compared with other property, and considerable litigation has resulted therefrom. For example, the Pennsylvania road, assessed at \$87,000,000 and taxed in the sum of \$800,000, recently contested the payment of taxes in 45 counties, securing affidavits of a large portion of even the assessing officers of the State that real estate was assessed at two-thirds or some portion only of its cash value, while on the other hand the State officers procured thousands of affidavits that real estate was assessed at substantially its cash value, the same as railroad property. While, after a time, the suit was adjusted upon practically somewhat of a compromise, it demonstrated the uncertainty and dispute as to the valuation of railroad property as compared even with real estate.

From conversation with railway representatives, we infer that taxation of such property directly by the State, upon unit valuation or gross earnings at a rate fixed by law, and with taxes payable to the State treasury, would be more satisfactory to them, even though the same amounts were levied and paid.

It is claimed that if all real estate and personal property, tangible and intangible, in the State could be as completely and accurately valued for taxation as railway property is, under the present method, the rate of taxation would be much less than an average of \$1.50 on each \$100 of valuation; and that they, under the existing system, are compelled to pay this high rate upon full valuation of all their property, while the real and personal property of the State is undervalued in comparison, and a vast amount of it escapes the tax duplicates entirely. In short, they claim that they are compelled by law to endure in aggravated form the evils inseparable from the general property tax system applied to all kinds of property, and to pay excessive taxes. On the other hand, as already stated, the tax officials of the State contend that railroad property is placed upon the duplicate in a manner just and fair as compared with other property.

It is contended that by this system all the property of such companies is reached, and the cause of common complaint that it is not taxed on the same basis as the property of individuals is removed.

The further reason is given that, being essentially a tax upon property, and sustained by a long line of Federal decisions, it is open to less objection on constitutional grounds than some other methods, where interstate commerce is affected.

TELEGRAPH, TELEPHONE, EXPRESS, AND SLEEPING-CAR COMPANIES.

By special act, these companies are required to file with the auditor of State annual statements showing in detail their capital stock, number of shares, market value, real and personal property owned by them within the State, mortgages, total length of lines in and out of the State, and length of lines within each of the counties and townships of the State, length of lines over which cars run, etc.

If these statements are deemed insufficient by the auditor, he may require such further statements and information as he may desire. These statements, with such other information as the auditor requires, are laid before the State board of tax commissioners, which values and assesses the property from such statements and other information as it may obtain, being required to assess such property at its true cash value.

It is provided that this board shall first ascertain the true cash value of the property by taking the aggregate value of all the shares of capital stock in case they have a market value, and in case they have none by taking the actual value thereof or of the capital of said company in whatever manner the same may be divided; provided that in case the whole or any part of such property is encumbered by mortgage, the board ascertains the true cash value of such property by adding to the market value of the aggregate shares of stock or to the value of the capital the aggregate amount of such mortgage or mortgages, and the result is deemed or treated as the true cash value of the property.

For the purpose of ascertaining the true cash value of the property within the State it next ascertains, from such statements or otherwise, the assessed value for taxation in the localities where the same is situated of the several pieces of real estate without the State and not specifically used in general business, which said assessed values are deducted from the gross value of the property as ascertained. It next ascertains and assesses the true cash value of the property of the company within the State by taking the proportion of its whole aggregate value, after deducting the assessed value of such real estate, which the length of the line of said company, in case of a telegraph or telephone company, within the State bears to the total length of the lines thereof; and in the case of a palace, drawing-room, sleeping, dining, or chair car company the proportion is the proportion of such aggregate value, after such deduction, which the length of the lines within the State over which its cars are run bears to the length of the whole lines over which said cars are run; and in the case of an express company the proportion is the proportion of the whole aggregate value, after such deductions, which the length of the lines or routes within the State bears to the whole length of the lines or routes of such company; and such amount so ascertained is deemed the entire value of the property of the company within the State.

From the entire value of the property within the State, so ascertained, the board deducts the assessed value for taxation of all the real estate, structures, machinery, and appliances within the State subject to local taxation, and the residue of such value is assessed to the company.

The State board thereupon ascertains the value per mile of the property within the State by dividing the total value as above ascertained, after deducting the specific properties locally assessed within the State, by the total number of miles within the State, and the result is deemed to be the value per mile of the property of such company within the State.

The board thereupon, for the purpose of determining what amount shall be assessed by it to such company in each county, multiplies the value per mile thus ascertained by the number of miles in each county as reported in such statements or as otherwise ascertained, and the result thereof is certified to the auditor of State, who thereupon certifies the same to the auditors, respectively, of the several counties through which the line extends, and such auditors apportion the amount certified for their counties, respectively, among the several minor taxing districts over which said lines or routes extend in proportion to the length of lines in such districts.

To enable the county officers to properly apportion the assessment, they are authorized to require the agents of such companies to report to them, under oath, the length of the lines in each township, and they thereupon add to the value so apportioned the assessed value of real estate and personal property situated in any township and extend the taxes thereupon on the duplicate as in other cases.

The assessed valuation of these classes of property in 1898 was \$5,189,824 and in 1899 \$6,900,239, which, at the approximate average rate of \$1.50 per \$100, may be said to have yielded in 1898 about \$77,839 and in 1899 about \$103,503.

BUILDING, LOAN, AND SAVINGS ASSOCIATIONS.

By special act in 1897 paid-up stock in these associations was defined to be such stock as the owner shall have paid the full face value of at the time of the subscription therefor; prepaid stock, that upon which the owner has paid any specific sum in advance at the time of subscription, leaving the balance necessary to mature the same to be paid by dividends declared, or stock on which more than six months' dues have been paid in advance. All building and loan associations

as such are exempted from taxation. Shares of stock on which loans have not been made or advanced by the association, which stock is paid up or prepaid, are considered credits of the members, individually, and listed by and assessed against them for taxation as other property.

RATE OF TAXATION.

The value of all property being placed upon the duplicates of the several counties, the State tax is apportioned among the counties and all taxes—State, county, township, or city—are mingled and levied upon this valuation.

The State commissioners endeavor to equalize the valuations of the property in the several towns, cities, townships, and counties as fixed by local assessors, and its proceedings show that the valuation of an occasional county is increased or lowered by a small percentage, as the appearance of the rolls may suggest, no personal inspection of the property in the counties being made by the board.

THE INDIANA SYSTEM.

The Indiana system, as it is designated in that State, established by the revised taxation law of 1891, while it has undoubtedly resulted in the increase and improvement of property valuation and assessment for taxation in some respects, must still be regarded as inefficient and inexact and exhibiting the characteristic defects of the general property tax, especially in its application to corporate property and intangible personalty. The great burden of taxation is still upon real estate, relieved somewhat by the increased valuation of corporate property.

Recent legislation and the united, organized action of assessing officers have tended to produce a State force of tax officials trained and educated in the business of listing and assessing property, and in this respect the system is most commendable.

The assessment of quasi-public corporations by a State board is also a praiseworthy feature, although the method of valuation, apportionment, and levying at local rates, as a whole, can hardly be regarded as scientific, equitable, or exact, and is of questionable merit.

Under this method the equitable assessment of this class of property must depend upon the exercise of discretion and judgment on the part of the State board in attempting to make valuations accord with the general valuations of tangible and intangible property made by local assessors, with results inevitably conjectural and open to contention. The system involves a continual attempt to square the unit rule of valuation, based on earning capacity, with the strictly general property tax of the State.

The same may be said of the assessment of other corporations by local assessors and county boards. As to values of personalty and capital stock and franchisees, there is a wide latitude of judgment, and valuation upon a parity with property in general must depend upon the action and shifting guess of local officials in different taxing districts. Just taxation is difficult to attain through proportional valuation by local assessors.

Under these methods of valuation of different classes of property, and the application of "uniform rates," unequal taxation would seem to be inevitable. It is difficult to conceive how the assessment of moneys and various forms of credits and securities at their certain value, and the assessment of corporate property upon the basis of capital stock, franchise values, and earning capacity in strict accordance with the specific directions of the law, can result in anything but excessive taxation as compared with general property. Equal taxation must depend upon compromise of assessing officers in the valuation of various forms of property; upon the shifting judgment and equitable adjustment of individuals. Equality of taxation can not be obtained by "uniform" tax rate and unequal valuations. The natural tendency of these conditions here, as elsewhere, is to encourage evasion and concealment and justify it in the minds of taxables.

As to personal property other than corporate, and especially the great mass of intangible personalty, the condition is admittedly unsatisfactory. The invariable injustice and confusion still exists to a greater or less degree, and there appears no reason to regard the system as more successful in preventing the inadequate and unequal valuation or the escape of such property than the same rigorous methods have been in other States under the general property tax.

While the laws governing property assessment and the united action of assessment boards combine to direct a careful and systematic search for these classes of property and their assessment upon the rolls, the result, upon the whole, in this

respect may, as in many other States, be regarded as a travesty on "taxation of all property at its true cash value at a uniform rate."

While the proceedings of the State board of tax commissioners and conferences of such board and county assessors show throughout that the complete uniform assessment of all property at its true cash value is clearly understood to be the purpose of the law, it is very evident that assessors come far short of the attainment of that purpose in actual practice, and that the result is still uncertainty, doubt, inequality, and evasion of taxation.

While there are manifestly many good features in the Indiana tax system, so called, which perhaps may be regarded as the most effectual in its application of those of the States where the general property tax prevails to the same extent, it still appears to come far short of establishing the correctness or practicability of that system or the vindication of the methods employed to facilitate the just taxation of corporate property and intangible personalty.

We find among public officials and citizens the same allegations and complaints common in other States as to ineffective enrollment and valuation of intangible property.

In the conference of the State board of tax commissioners and county assessors of 1900 a prominent tax official said, among other things, that much personal property of inhabitants of Indiana held outside of the State escapes taxes, it being difficult, if not impossible, to go beyond the return of the taxpayer. Referring to the ordinary debts and demands, accounts and bills, and notes, he says: "These classes are singularly elusive, and the difficulty in securing their return for taxation has proved so far insurmountable to legislators. As the law now stands, the taxing officers through the carelessness, neglect, or defective memory of many taxpayers are certainly unable to procure a very large proportion of personal property in these classes. The fact that personal property bears less than 27 per cent of the burden of taxation in Indiana is due largely to property of these classes, which in some way or other manages to escape taxation. It is probably true that the personal property in the State of Indiana equals or exceeds the value of the real estate and improvements, but how to find it and how to tax it are still questions for legislators."

And another prominent State official, in the same proceedings, after reference to the action of the convention looking to enactment of still more searching statutes for the discovery and assessment of property, says:

"The personal-property valuation of the State in 1899 was practically \$300,000,000. The reports of the banks at the time in Indiana show one-fifth of this amount was on deposit due to individuals. It is unjust to corporations that may be taxed faithfully, it is unjust to farmers whose lands are listed in accordance with law, that the statutes do not give more powers of investigation to the assessing officers, and with the legislation that I am sure the experience of this convention will recommend, the sequestration of personal property will be unearthed and the volume of personal property upon the duplicates be increased millions of dollars."

That the value and effectiveness of other methods of taxing railroad property and that of other public corporations is appreciated by the taxing officers of this State is shown by the statement of the auditor of State in an address to the State board of tax commissioners and county assessors in the conference of 1900, who, after referring to the assessing of railroad and other corporate property and sharing in the burdens of not only State but local government, says: "If the end could have been seen from the beginning, a franchise tax on railroads would have been a blessing to the State. It should always be remembered that in the organization of corporations, the legislature acting for the people speaks them into being. The people never lose their identity. The corporation is a supplicant. The humblest citizen is given a right in the organization of the largest corporation. I believe that always and everywhere, when a franchise is given a railroad, the public treasury should receive a per cent on the gross receipts. In this State we tax insurance companies 3 per cent on net receipts, and this with the collateral fees gives to the general fund of the State nearly a quarter of a million of dollars annually. These public utilities are creatures, so far as vested rights are concerned, of the people. And if the State shared in the gross revenue, the day would come when the State levies of direct taxes could be materially reduced if not altogether done away with."

The same officer again says: "The framers of the law in 1891 not only were wise in arriving at the methods and the basis of assessing corporate property, but in placing the assessment of it almost wholly within the duty of a separate board. County and township taxing officers are restricted to the property within their limits.

It is only the nonessential elements of corporate property, such as is not an integral portion of the operation of corporations, that is touched upon by the local officers. It is the more especial province of local taxing officers, so far as vigilance is now concerned, to reach personal and sequestered property."

We quote the following from an address of the governor to the conference convention of the county assessors and State tax commissioners in 1899:

"The results of the conference one year ago were most gratifying. There was an increase last year in the assessment of personal property of \$10,000,000. During the six years preceding there had been a loss in the personal property assessment in the State of \$11,668,431, while during the same period there was an increase of assessments upon real estate of \$40,709,018. There can be no question that if all personal property had been justly listed, there would have been a large increase instead of reduction. The vast amount of intangible personal property that escapes taxation is causing dissatisfaction among holders of real estate and will prove an incentive to them to seek undervaluation.

"The prevailing disposition to seek investments in intangible securities, thereby escaping the assessor, not only places a premium upon such investments, but tends to discourage efforts to secure homes, the purchase of which often incurs debt, thus imposing upon the home getter the unequal burden of paying tax upon more than he possesses, while other investments escape altogether.

"This widespread wrong, grievous as it may seem, does not justify in any degree undervaluation of real estate. It is your duty to see that all property, real or personal, tangible or intangible, is assessed at its true cash value. Upon this point there seems to be a wide divergence of opinion."

One of the members of the State board of tax commissioners in the convention of 1899 thus referred to those who seek to evade taxation: "There are many men who in all else stand well in their communities, men who would scorn to beat a neighbor out of a nickel, but who seem to look upon it as a matter of course that a man should, if he can, escape taxation; and they resort to all sorts of shifts and subterfuges, even to perjury itself, to escape their just share of the burdens of the Government, without whose protection they should have security for neither person nor property. These tax-dodging gentry are not always of the under half of society. Many of them occupy high social positions, and are rated as gilt-edged in the business world by Dun and Bradstreet, while many of them also occupy front pews in our houses of worship, and the fervor of their appeals to the Throne of Grace on Sunday is in no wise diminished by reason of a hard day's work in hiding their property from the tax assessor on Saturday."

These comments, together with the property valuations elsewhere referred to, indicate that tax dodgers are about as numerous and elusive pests in Indiana as in other States.

ABSTRACT OF TAX DUPLICATES FROM 1878 TO 1899.

Statement showing the total taxable property of the State, real and personal, including railroad and other corporate property, for the years 1878 to 1899, inclusive.

Year.	True value of lands.	True value of improvements.	True value of lands and improvements.	True value of lots.	True value of improvements.
1878.....	\$389,839,376	\$73,545,220	\$463,384,596	\$94,242,371	\$81,200,179
1879.....	384,029,096	74,968,342	458,998,438	93,294,796	84,664,929
1880.....	326,810,513	62,721,296	389,531,809	72,066,594	71,873,971
1881.....	329,531,670	63,481,830	393,013,500	72,819,733	73,991,981
1882.....	331,696,565	65,017,373	396,714,138	73,342,409	73,078,370
1883.....	330,624,336	65,806,368	396,330,204	73,421,963	77,675,270
1884.....	332,685,700	74,542,113	407,127,813	73,806,902	84,965,539
1885.....	330,740,778	73,787,101	404,527,879	73,373,104	83,620,998
1886.....	316,425,125	63,478,906	379,904,030	70,868,426	81,323,090
1887.....	315,588,490	66,060,246	381,638,736	71,027,330	82,658,119
1888.....	309,457,303	64,926,562	374,383,865	75,986,388	88,906,633
1889.....	307,834,006	65,439,284	373,273,389	76,515,627	93,997,381
1890.....	308,173,414	69,102,918	377,276,332	76,585,557	100,075,856
1891.....	450,186,112	79,351,475	529,537,587	140,902,060	128,160,686
1892.....	449,544,067	81,563,811	531,097,868	141,133,709	136,635,393
1893.....	453,896,136	84,708,043	538,603,179	147,890,330	146,799,593
1894.....	454,131,203	86,544,362	540,676,166	149,263,302	153,441,643
1895.....	455,733,669	80,364,330	536,087,999	149,585,197	150,319,353
1896.....	453,881,049	81,864,942	535,745,991	151,043,597	157,970,527
1897.....	456,443,089	83,471,438	538,914,527	151,351,399	162,384,364
1898.....	452,891,623	84,869,118	537,760,741	151,662,796	168,203,319
1899.....	449,561,168	84,692,005	534,253,163	162,741,375	163,371,084

Statement showing the total taxable property of the State, real and personal, including railroad and other corporate properties, etc.—Continued.

Year.	True value of lots and improvements.	True value of personal property.	True value of telephone, telegraph, express, and sleeping-car property.	True value of railroad property.	Total true value of tax-ables.
1878.....	\$176,442,560	\$198,333,157	\$180,346	\$37,629,614	\$874,921,002
1879.....	177,849,726	208,685,821	.....	38,019,726	883,443,510
1880.....	144,380,665	192,382,302	.....	38,442,941	764,287,517
1881.....	148,811,714	220,858,701	.....	43,336,140	804,019,555
1882.....	146,713,304	213,889,062	.....	47,885,398	804,910,267
1883.....	150,997,288	212,761,062	.....	53,480,382	920,549,421
1884.....	158,772,441	218,391,019	.....	55,067,677	839,348,950
1885.....	161,294,102	217,004,096	.....	54,983,617	837,770,099
1886.....	152,191,516	221,730,233	395,802	55,244,520	809,466,401
1887.....	153,686,049	224,399,516	434,985	61,314,778	821,473,364
1888.....	164,845,321	227,263,502	484,963	64,211,717	831,287,503
1889.....	171,880,368	234,413,787	680,589	63,134,358	842,016,406
1890.....	176,661,412	238,831,076	698,672	66,206,295	862,673,088
1891.....	269,062,736	233,745,334	1,871,012	161,039,169	1,254,256,088
1892.....	277,768,072	256,914,156	1,686,831	160,970,108	1,267,435,085
1893.....	234,680,778	304,581,768	5,068,780	159,376,560	1,802,810,270
1894.....	302,706,445	291,085,315	3,513,965	157,125,085	1,296,106,415
1895.....	292,304,550	288,881,711	3,206,798	156,469,678	1,288,060,531
1896.....	309,014,124	287,091,096	3,963,791	154,836,265	1,292,641,177
1897.....	313,736,568	282,082,113	6,406,405	154,825,758	1,296,985,056
1898.....	319,866,115	295,032,880	6,189,324	163,659,748	1,311,508,068
1899.....	326,112,409	315,540,675	4,696,690	163,693,506	1,334,295,443

ANALYSIS OF ABSTRACT.

The purpose of the reformed tax law of 1891, as already shown, was to bring about a more complete and equal valuation and assessment of property.

The results are roughly shown by the foregoing abstract of tax duplicates from 1878 to 1900.

The valuation of lands had gradually decreased from \$389,889,875 in 1878 to \$308,178,414 in 1890. It was in 1891 increased to \$450,186,112, or about 50 per cent, subsequently increased to \$455,733,569 in 1895, and gradually decreased to \$449,561,158 in 1899.

There was a smaller increase in the valuation of improvements in 1891 over 1890 and no material change during the last few years, that of 1899 being \$34,692,005. The valuation of lands and improvements under the new law reached its maximum in 1894, \$540,676,155, varied a few millions in subsequent years, and in 1899 was \$534,253,163. The value of lots and improvements increased in 1891 over 1890 about \$92,000,000, to \$269,062,736, or more than 50 per cent, and has since increased to \$326,112,409.

The valuation of personal property increased under the new law from \$236,831,076 in 1890 to \$298,745,534 in 1891, or about 25 per cent, with varying changes in subsequent years, until in 1899 it reached \$315,540,675, an increase that year of substantially \$19,500,000.

The increase of the valuation of all real estate in 1891 over that of 1890 was \$244,632,579, or 44.1 per cent. The increase of the valuation of personal property in 1891 over that of 1890 was \$56,914,458, or about 24 per cent. The valuation of all real estate in 1890 was \$553,937,744, and of personalty \$236,831,076, the personalty being about 42 per cent of the real estate. In 1899 the valuation of real estate was \$360,365,573 and that of personalty \$315,540,675, the personalty being about 36.6 per cent of the real estate.

It will thus be seen that the ratio of personalty to real estate was greater in 1890 than in 1899, and yet it is a matter of common knowledge that personal property has greatly increased since 1890.

The assessment of telegraph, telephone, express, and sleeping car companies increased from \$698,673 in 1890 to \$1,871,012 in 1891, and reached about \$5,000,000 in 1893. The valuation of railroad property increased from \$66,206,295 in 1890 to \$161,039,169 in 1891, or nearly 150 per cent, and the tendency has since been downward until 1899. The increase in the assessment of public-service corporations was proportionately greater than that of real property, and the latter much greater than that of personal property. The increase in the valuation of all tax-ables was from \$853,673,088 in 1890 to \$1,255,256,088 in 1891, and in 1899 the valuation reached \$1,334,295,443.

This analysis does not disclose any remarkable reformation in the relative assessment of real and personal property under the law of 1891. It immediately increased the total valuation of the State \$402,588,000, or nearly 50 per cent.

This increase was apportioned among the different classes of property as follows:

	Increase.
Lands.....	\$142,021,698
Improvements.....	10,248,557
Lots.....	64,316,493
Improvements.....	28,084,831
Total increase of real estate.....	244,662,579
Personal property.....	56,914,458
Telegraph, telephone, express, and sleeping car companies.....	1,172,340
Railroad property.....	94,832,874

MICHIGAN.

GENERAL TAXATION SYSTEM.

The constitution of Michigan imposes upon the legislature the duty to provide a uniform rule of taxation, except upon property paying specific taxes; and it provides that taxes shall be levied upon such property as shall be prescribed by law, and that all assessments shall be on property at its cash value.

Following these constitutional provisions, the legislature at the time of the formation of the State government enacted laws providing a general system of taxation of the property of the State by two separate and distinct methods, designated as "general tax" and "specific tax."

The most important part of the tax system is the general tax on property. The laws first, in a general way, provide that all property, real and personal, within the jurisdiction of the State not expressly exempted shall be subject to taxation.

They provide for the annual assessment of all property in the State, including corporate property, with certain exceptions, such corporate property to be assessed to the corporation in its name as to a natural person, in the several townships, villages, and cities of the State by the supervisors of the several townships and wards, or in villages and cities where provision is made in the acts of incorporation or charter for some other assessing officer, then by such other assessing officer. The general property tax assessment is made by local assessors for local and State purposes, the amount of State taxes each year being apportioned by the auditor-general of the State among the several counties in proportion to the valuation of the taxable property therein, and this is again reapportioned by the board of supervisors of each county among the several townships and wards and levied in the same manner.

This system of general property taxation, adopted at an early date, when the greater portion of the property of the State consisted of real estate, although somewhat changed and supplemented in details from time to time by the attempts of different legislatures to adapt it to the needs of a rapidly growing State, continues to the present time, and now, in many respects, appears crude and antiquated under the changed conditions of industrial development, and ill adapted to the just and equitable taxation of the enormously increased amount of personal property in the State, which is largely in corporate form.

Through this system substantially all the real property of the State is assessed upon the rolls in the various localities, but the mingling of local and State taxes naturally results in systematic attempts by local assessors to secure advantage for their respective localities by a reduced property valuation, notwithstanding the constitution and statutes impose upon them the duty of assessing property at its true cash value. A comparatively small portion of the personal property, individual and corporate, is assessed. Intangible personalty, especially, in great part escapes.

From statistics of assessment and taxation gathered by the auditor-general from the different counties of the State and published in his report for 1870, it appears that the cash value of all real and personal property upon the tax rolls was a little more than three times the assessed valuation of the same property. While since that time no such systematic attempt to determine the relation of assessed valuation to cash value of property has been made, it is probably safe to assume that the same difference still exists.

GENERAL PROPERTY TAX EXEMPTIONS.

The State subjects to taxation "all property, real and personal, within the jurisdiction of the State not expressly exempted."

The exemptions are of three kinds:

First. Property used not for gain, but for purposes which it has been thought well to cherish and encourage.

Second. Property of corporations exempt by reason of paying specific taxes.

Third. Certain exemptions made with a design to prevent the burden of taxation from being unduly heavy upon those not able to bear it without undue hardship.

The real property expressly exempted consists of all public property; the real estate of libraries, benevolent, charitable, scientific, and educational institutions incorporated under the laws of the State; that of all religious societies, agricultural societies, and military organizations, and corporate property exempt by reason of specific tax.

Personal property expressly exempt consists of that of societies above enumerated; shares in building and loan associations, and mortgages and other securities held by such associations; pensions receivable from the United States; so much of credits as shall equal the amount of debts owed; the library, family pictures, and one sewing machine of each individual or family, and wearing apparel of each individual; household furniture, furnishings, and fuel of each householder not exceeding \$500, and personal property in connection with his business to the value of \$200; the working tools of any mechanic, not exceeding \$100; all mules, horses, and cattle not over 1 year old, and sheep and swine not over 6 months old, and all domestic birds.

PERSONAL PROPERTY.

For the purpose of taxation, personal property includes substantially everything of that nature, tangible and intangible, not specially exempted by law, and is particularly classified in special statutes.

Property actually invested in business outside the State is not included. Debts are deductible from credits only, and the balance of credits of every kind is taxable. Shares in foreign corporations owned by citizens are taxable to the owners.

While the law does not refer in express terms to the taxation of notes and mortgages, they are regarded as taxable to the owner under the provisions for taxation of credits and other personal property not expressly enumerated. Such property, however, has almost entirely escaped taxation under the existing system. The State tax commission is, however, making special effort throughout the State to bring such property upon the tax rolls.

In 1891 a law was enacted providing that a mortgage or other obligation secured by lien on real estate should be treated as an interest in real estate for the purposes of taxation; that the value of property less the value of the security should be taxed to the owner and the value of the security assessed separately to the owner thereof in the assessing district where the property so affected was located. The provision was not thoroughly enforced, and in practice the taxes on both land and mortgage were, by contract between the parties, paid by the owner of the land. Confusion and dissatisfaction resulted, and the law was repealed in 1893.

LISTING.

Rigorous provisions for the listing of personal property for taxation have been upon the statute books for many years, but have in practice been ignored.

The assessment of personalty by local assessors has been almost entirely by estimate without statement of taxpayers and has been characterized by extreme laxity and neglect, resulting in low, unequal assessment of a portion only of tangible personalty and the escape of substantially all intangible property. At a recent session of the State legislature, however, the laws constituting the listing system were amended in important particulars and a vigorous effort has since been made by the board of State tax commissioners, hereafter referred to, to enforce them.

By the change of the word "may" to "shall" the duty of the local assessor to require a statement under oath from every "person of full age and sound mind" whom he believes to have property not exempt from taxation is made mandatory. The assessor's and the taxable's duties in this regard are minutely defined. Every resident owner of the State, individual or corporation, is required to give a carefully detailed list of all personalty, tangible and intangible; and severe penalty, by fine or imprisonment, is imposed for willful neglect or refusal to make out such statement or for answering questions falsely.

The assessing officers or members of the State board are especially empowered to examine under oath any other person thought to have knowledge of the property of such negligent taxable concerning such property, and arbitrarily to assess such amount of real or personal property as they may deem reasonable and just.

An interesting case bearing upon the legal effect of the intentional undervaluation and omission of property by assessors in making up the assessment rolls,

illustrating the infirmities of the general tax system, was recently decided by the supreme court of the State. (*Auditor-General v. Pendill et al.*, decided March 27, 1900.)

Where the evidence showed an intentional omission of personal property, an intentional undervaluation of a large part of the personal and real estate, not accidental, not inadvertent, but known and intentional, the entire assessment roll was held to be void.

The listing of property of corporations will be referred to in connection with the subject of corporate taxation.

BOARD OF STATE TAX COMMISSIONERS.

In 1899 a law was passed creating a board of State tax commissioners to exercise supervisory control over local tax officers. It was vested with arbitrary power and authority for the enforcement of the tax system of the State, and charged with the duty of investigation and recommending future legislation upon the subject of taxation.

The board consists of three members, appointed by the governor, and the full term of service is 6 years. The members are given access to the records and files of the State and of counties, townships, and municipalities, the right to examine the books and papers of any person or corporation owning property liable to assessment, and the power to summon and examine witnesses. It is required to exercise supervision over all the assessing officers of the State, and to take such measures as will secure the enforcement of the tax laws, "to the end that all the properties of the State liable to assessment for taxation shall be placed upon the assessment rolls and assessed at their actual cash value."

The duty is imposed upon it to confer with and advise assessing officers as to their duties, and to institute proper proceedings to enforce the penalties and liabilities imposed upon public officers, officers of corporations, and individuals failing to comply with the laws; to receive complaints and correct errors and irregularities; to visit each county at least once a year, to hear complaints concerning the laws, collect information as to its workings, and see that officers comply with the law, that violations are punished, and that proper suggestions as to amendments and changes are made; to ascertain the assessed and equalized valuation of all property listed for taxation throughout the State; to inquire into and ascertain the valuation of the property of corporations paying specific taxes, and the actual rate of taxation based upon property valuation; to investigate the revenue laws and systems of other States, and with the aid of all information and experience obtained, recommend to the legislature at each session such amendments and changes of the revenue laws of the State as may seem proper to remedy injustice and irregularity and facilitate the assessment and collection of public revenue; to report to the legislature at each regular session specifically the true valuation of the properties of corporations paying specific taxes, and rates actually paid thereon, and the true valuation of all other properties of the State, and the rate of taxation thereon, to the end that the legislature may have the requisite information to rearrange the rates or system of taxation on such property, so that all properties may be uniformly taxed.

This board is also charged with the inspection of the several assessment rolls of the State, and empowered to direct such changes and additions as may be necessary to compliance with the laws and the correct taxation of all property. It is also given power to tax upon the current rolls in any year property that has been shown to have been omitted in previous years for the tax of the omitted period.

BANKS.

The real estate of all banks organized within the State is assessed to such banks where such property is located. All shares in such banks are assessed at their cash value to their owners in the place where the bank is located, except that shares owned by a person residing in the same county but in a different township or city are assessed where such owner resides.

The cash value of the real estate assessed separately to such banks is deducted from the assessed value of shares of stock. When the stock of a bank is not regularly quoted in the market, the value of shares may be determined by dividing the sum of the paid-up capital and surplus by the number of shares, deducting from each a proportionate part of the cash value of realty taxed to the bank.

The real estate and shares so valued are taxed at local rates with other assessed property.

Bank deposits are taxable by law to depositors or owners and not to the banks. In practice, however, bank deposits have not been taxed in this State.

For convenience in collecting these taxes the cashier of the bank is made the agent of the shareholders, the official duty being imposed upon him to pay the taxes assessed upon such shares of stock when called upon to do so, and charge the amount so paid against the shares of stock so taxed.

The cashier is required each year to file with the clerk of the county where such bank is located a list of the names of the stockholders, with the amount of stock held by each and their respective residences, and a heavy penalty is imposed for willful neglect to perform this duty.

Thereupon the county clerk is required to notify the assessing officer of each township of the names of each shareholder residing therein and the amount of stock held.

The principal or accounting officer of every bank whose capital is not represented by shares of stock, and every private banker, broker, or stock jobber is required each year to give to the local assessor a sworn statement showing:

First. The amount of money on hand and in transit.

Second. The amount of funds in other hands subject to draft.

Third. The amount of checks and other cash items not included in above items.

Fourth. The amount of bills receivable and other credits.

Fifth. The amount of bonds and stocks of every kind, except United States bonds and shares of capital stock held as an investment or representing assets.

Sixth. All other property appertaining to such business, except real estate.

Seventh. Amount of deposits.

Eighth. Amount of accounts payable other than deposits.

Ninth. Description and value of real estate.

The aggregate amount of items 7 and 8 are deducted from aggregate of 1, 2, 3, and 4, and the remainder, if any, assessed as moneys.

The amount of the fifth item is assessed as stocks and bonds, the sixth as other similar property, and the whole makes up the aggregate personal assessment, the real estate being assessed separately.

The property of banks being subjected to local rates of taxation upon the basis of valuation determined by the methods above described, it follows that by reason of full valuation it is much more heavily taxed than property in general, and from this excessive taxation there is no escape.

CORPORATIONS IN GENERAL.

Under the tax laws of Michigan a corporation whose property is taxable under the general law stands upon the same footing as an individual. The property of both come under the general property-tax system. The real estate is assessed in the name of the corporation in the place where located.

The law as to the taxation of the personal property of corporations is not very clear, but in a general way it may be said that there is no substantial distinction between the taxation of such property and that of individual owners.

It is specifically provided that "all corporate property, except where some other provision is made by law, shall be assessed to the corporation as to a natural person, in the name of the corporation."

The provisions declaring what personal property for the purposes of taxation shall include and relating to exemptions apply to corporate property as well as to that of individuals.

Under these provisions the indebtedness of either an individual, firm, or corporation can be deducted only from credits; if no credits are shown in a statement of such property there is nothing from which debts can be deducted. Where the property of corporations is taxable to itself the shares of stock are exempt from taxation in the hands of the owners.

The personal properties of all gas and coke companies, natural-gas companies, electric-light companies, waterworks companies, and hydraulic companies are assessed where the principal works are located. The mains, pipes, and wires of such companies laid in or along roads, lanes, streets, or alleys are assessed as personalty where the same are laid or placed. The personal property of street railroad, plank road, cable or electric road or transportation companies, bridge companies, and all other companies except those paying specific taxes, are assessed where the principal office of the company is located, and the track, road, or bridge of any such company is held to be personal property and assessed where the same is located, placed, or laid.

Formerly street-railway companies were taxed at the rate of one-half of 1 per cent on the whole amount of capital paid in on the capital stock in lieu of all other taxes, but this law was repealed in 1882.

The property of many classes of corporations is specifically taxable to the corporations themselves by provisions in the acts under which they are incorporated.

The law for the incorporation of manufacturing companies contains the following provisions: "All corporations formed or existing under this act shall be liable to be assessed for all real and personal estate held by them in this State at its true value, and shall pay thereon a tax for township, village, city, county, and State purposes the same as other real and personal estate, and such tax shall be assessed, collected, and paid in the same manner as other taxes on real and personal estate are required to be assessed, collected, and paid: *Provided*, That nothing herein contained shall authorize the taxing of the capital stock of such corporations as such capital stock."

For the purpose of assisting the local assessor in determining the valuation of corporate property, each corporation taxable under the general law is required to make and deliver to him annually a sworn statement setting forth:

First. The name and location of the company.

Second. The amount of capital stock authorized and the number of shares into which it is divided.

Third. The amount of capital actually paid in.

Fourth. The market value of the stock, or, if it has no market value, then its actual value.

Fifth. The cash value of all personal property, giving each kind separately as far as practicable.

Sixth. The total of all bona fide indebtedness, except indebtedness for current expenses, excluding from such expenses all amounts paid for the purchase or betterment of said property.

Seventh. A description and value of real estate.

The amount of the seventh item is deducted from the amount of the fourth item, and the balance, if any, is assessable as the cash value of the personal estate. The amount of the sixth item is deducted from the amount of the fifth item, which is held to refer to credits, and the balance, if any, is assessed as personal property.

Special statements are required of navigation or transportation companies as to vessel and marine property.

If any corporate officer makes or verifies any false statement to an assessing officer, the intention or effect of which is to escape taxation, such person is declared guilty of a misdemeanor and is punishable by fine or imprisonment.

Severe penalties are by law imposed for neglect or refusal to make true and correct sworn statements. The assessor or board of State tax commissioners in certain cases may examine under oath any person believed to have knowledge of such property, and are authorized to assess to any corporation neglecting or refusing to make such statement such amount of real and personal property as they may deem reasonable and just.

When the valuation of personal property is determined in the manner set forth, it is assessed to the corporation in like manner as individual property.

Until 1899 the requirement of statements of the property of corporations was discretionary with the assessors, and in practice they were generally not required, and the real and personal property of corporations under the general law was assessed by estimate of the local assessing officers as individual property, regardless of capital stock, franchise valuations, or earning power as factors, and with like result as to true valuation.

The amendment of 1899 makes the requirement of such statements mandatory, and some attempt has since been made to enforce them.

It will be observed that no specific provisions are made for the valuation or assessment of franchises, and their value, if assessed at all must be included in capital stock or personal property generally.

The crudeness and inefficiency of this system as applied to corporate property is obvious, and the undervaluation and unequal valuation of such property as compared with the real value thereof, based upon capital stock, franchises, earning power, and other material factors, and escape of property from the rolls entirely, are disclosed by the most cursory examination, and are the cause of continual controversy throughout the State.

The taxation of corporate property under the general law in Michigan is a farce and a travesty upon justice and equality of taxation.

Assessed valuations, 1896.

All real estate	\$805, 553, 976
Personal property, including that of corporations.....	140, 455, 965
Total	946, 009, 941

The total was equalized by the State board of equalization to \$1,105,100,000.

The assessed valuation of real property in 1899 was not materially increased over the above figures, the real estate as assessed being about \$825,000,000, and that of personal property \$144,000,000.

Through the efforts of the State board of tax commissioners, the valuations for 1900 were materially increased, the increase being \$349,260,941 in the total valuation—\$180,594,802 on real estate, and \$168,666,639 on personalty.

What effect this increase, made somewhat indiscriminately, will have upon the equality of taxation throughout the State can not yet be determined.

SPECIFIC TAXATION SYSTEM.

The property of most quasi-public corporations within the State comes within this system, imposing fixed rates of taxation upon gross earnings.

The constitution of the State provides that all specific State taxes, except those received from the mining companies of the Upper Peninsula, shall be applied to the payment of the primary-school interest fund of the State.

This primary-school interest fund, so called, is apportioned among the several townships and cities of the entire State in proportion to the number of children in each between the ages of 5 and 20 years.

The total specific taxes for 1899 were as follows:

From railroad companies.....	\$1,091,526.89
From river-improvement companies	2,180.77
From insurance companies	239,500.45
From plank-road companies	1,188.51
From express companies.....	13,680.56
From telegraph and telephone companies	70,058.81
From freight, palace, and sleeping car companies	89.93
From franchise fees	6,441.88
Total	1,424,617.80

From the reports of the auditor-general it appears that occasionally a county having a considerable population, but small amount of taxable property, receives a larger amount from this primary-school fund than the entire amount of State tax contributed by such county; but as a rule the amount of the primary-school fund apportioned to counties constitutes but a small portion of the amounts of State taxes paid by them.

Prior to 1871 the railroads of Michigan were required to pay a specific tax on their respective amounts of capital stock paid in.

In 1871 an entirely new system of taxation of railroads was adopted, based upon earnings instead of capital, earnings being regarded as a more equitable criterion of value for the purpose of taxation. It was thought that a road that earned nothing was of little value, whatever it might have cost, while a road with large earnings was valuable regardless of its cost.

Difficulties of previous systems were disposed of and the State started out upon a system, which has ever since existed and still continues, of taxation upon gross earnings.

At first no provision was made in regard to corporations whose roads crossed the State line; but as necessity arose, in 1878, the law was revised and provision made for the taxation of a corporation whose line of railroad "lies partly within and partly without the State," and a method was prescribed for arriving at the proportionate earnings of such a road.

RAILROAD SPECIFIC-TAX LAW.

Under the existing law passed by the legislature in 1897, increasing the graded specific-tax rates over those of the previous law, every railroad company and union railroad station and depot company owning or operating any railroad situated in whole or in part in Michigan is required, on or before July 1 of each year, to pay to the State treasurer, on a statement of the auditor-general, a specific tax upon its business computed in the following manner:

Upon a gross income not exceeding \$2,000 per mile of road actually operated within the State, 2½ per cent of such income.

Upon an income in excess of \$2,000 and not exceeding \$4,000 per mile, 3½ per cent thereof.

Upon all such income in excess of \$4,000 per mile and not exceeding \$6,000 per mile, 4 per cent thereof.

Upon all such income in excess of \$6,000 per mile and not exceeding \$8,000 per mile, 4½ per cent thereof.

Upon all such income in excess of \$8,000 per mile, 5 per cent thereof.

In the case of union station and depot companies whose earnings are in excess of \$20,000 per mile the rate on such excess is 10 per cent.

When railroads lie partly within and partly without the State, the gross income for the purpose of taxation is upon the earnings of the road in Michigan, computed by adding to the income derived from business entirely within the State such proportion of the income arising from interstate business as the length of the road over which said interstate business is carried in Michigan bears to the whole length of the road over which it is carried. While the legality of the tax upon earnings from interstate commerce has been questioned in discussion in this State, it has not been tested in the courts, railroads having complied with the law.

The taxes so paid are in lieu of all other taxes, except real estate owned and not necessary or in use in the proper operation of the road, such estate being subject to local assessment as other property under the general law.

There is another exception, that of real estate for local assessment for special-improvement taxes in cities and villages.

Prior to 1897 the graded specific rate of taxation was as follows, there being, as above set forth, a considerable increase in the law of 1897:

	Per cent.
Upon gross earnings not exceeding \$2,000 per mile	2
Upon excess of \$2,000 and not exceeding \$4,000 per mile	2½
Upon excess of \$4,000 and not exceeding \$6,000 per mile	3
Upon excess of \$6,000 and not exceeding \$8,000 per mile	3½
Upon excess of \$8,000 per mile	4

The following table shows the amount charged to and paid by the railroads of the State during the years designated:

1890	\$712,474.21	1895	\$676,115.78
1891	859,845.22	1896	741,889.57
1892	858,790.91	1897	785,964.43
1893	893,801.61	1898	879,521.90
1894	811,290.14	1899	1,091,526.39

It should be borne in mind that these amounts are in lieu of all other taxes, and represent substantially the total taxation of railways in the State during the years stated, except special assessments for public improvements in cities and villages.

VALUE OF RAILROAD PROPERTY.

The State railroad commissioner, in his annual reports for 1897 and 1898, states the total cost of railways in Michigan to be as follows:

1897:	
Wholly or in part within the State	\$1,018,504,035.81
Cost of portions within the State	291,074,216.78
1898:	
Wholly or in part within the State	1,025,741,848.54
Cost of portions within the State	294,290,145.02
Total gross income or receipts from operation in Michigan:	
1898	82,047,469.84
1899	85,892,864.22
Operating expenses for 1899	26,162,127.21
Net earnings	9,780,787.00

Tax about 11 per cent of net earnings.

The reported cost of railroads affords no reliable measure of the actual values of such property and no proper basis for taxation. It is obvious that the original cost of such property bears no necessary relation to its present actual value, much less to its present earning capacity.

A railroad commissioner of this State recently said: "The cash valuation of a railroad is fixed by the amount of its earnings, continued for a number of years, regardless of the cost of construction; in short, the market value of a railroad depends upon its past, present, and prospective earnings."

Capitalizing, according to the method adopted by the Ohio tax commission in 1893, namely, earning power at 6 per cent, the net earnings being \$9,780,787 in 1899, an exceedingly prosperous year, the actual value of the property producing it would be 16½ times that amount, or \$162,178,950, and the rate of taxation thereon

substantially 64 mills on the dollar. The net earnings of Michigan railroads for 1895 were \$5,229,760.98, which amount, according to the above rule, would indicate a value that year of \$37,162,682.16. While the mileage of Michigan railroads is large, it is not uniformly profitable, nor would it come within as high a grade or value as that of Ohio railroads, and this method would afford no reliable criterion of value. The assessed valuation of Ohio railroads under the general-property tax is less than one-third of the valuation computed by the above method.

The assessed valuation of the railroads of Indiana by the State board of tax commissioners under the unit rule in 1899 was, in round numbers, \$153,000,000.

The grade of railroads in Indiana is much higher than that of Michigan railroads, Indiana being traversed in every direction by the great trunk lines; and while Michigan has a few more miles of road than Indiana, it is hardly probable that its entire mileage could be fairly appraised at anything like the real value of the Indiana roads.

The Illinois tax commission in 1896, after careful study of railroad statistics and much thought given to the average proportion between gross receipts, expenditures, and capitalized values of railroads, deduced the conclusion that five times the amount of the gross receipts of a railroad would, for purposes of taxation, fairly represent the value of its property, and would be high enough to compare with other property assessed on a basis of full cash value.

Applying this novel rule to Michigan railroads would result in a taxable value in 1898 of \$160,237,345 and in 1899 of \$179,464,320.

Inasmuch as considerable controversy has arisen in this State during the past few years as to the relative amount of taxes paid by the railroads of the State, compared with the amount paid by other property under the general-property tax, a few observations upon this subject may not be out of place in this report. The equalized valuation of real and personal property of the State under the general-property-tax law, as fixed by the State board of equalization in August, 1896, was \$1,105,100,000.

The taxes levied for all purposes in the State, including all specials of every kind, but excluding all specific taxes, as shown by a careful investigation of the auditor-general, amounted to \$19,500,061.09.

By a system of computation made in the auditor-general's office, in which are taken into consideration as factors the rate of taxation in the respective counties of the State, and also the various amounts of property to which these rates apply in the different counties, the average rate of taxation is shown to be \$1.76 on each \$100 of equalized valuation of the year 1896.

We give this more accurate computation for the reason that the computations generally made, omitting some of the factors above named, give a common rate of taxation of approximately 3 per cent.

Obviously, in ascertaining an accurate rate of taxation on this valuation in the State, still other factors should be considered. The equalized valuation of property upon which the computation referred to is based is very much less than the actual cash value of the property assessed under the general law, the cash value of property assessed being, as we have stated, approximately three times the assessed valuation.

When in connection with the undervaluation is taken into consideration the vast amount of property, real and personal, exempt from taxation under the general law, and the enormous amount of personal property, both tangible and intangible, which remains undisclosed and escapes the assessment rolls entirely, it will be seen that the strictly correct rate of taxation of property under the general law, as compared with the cash value of property under the specific-tax system, based upon the total cost of such property or upon net earnings or business, would be very materially reduced below the rate of \$1.76 referred to; in fact, would be but a small portion thereof.

As we stated elsewhere (see Ohio), it is exceedingly difficult to make strictly equitable and reliable comparison between two entirely different methods of taxation, the one based upon real and tangible property, partially valued by estimate of elective officers, and the other based upon real and intangible property, fully valued by self-assessment, based upon actual business and earning power, without evasion or escape. Could such comparison be reliably made, the necessity for the adoption of a different method for intangible and corporate property would disappear and the general-property tax would be adequate. It should be remembered that the methods are based upon entirely different principles of taxation, the one upon property value, the other upon productivity, and it is about as difficult to apply a like measure to both as to measure water with a yardstick.

It is easy to juggle with intangible and speculative values. Indeed, it is difficult to avoid juggling in the attempt, commendable though its purpose may be, at

comparison of the real and tangible with the unreal and intangible for purposes of taxation. The statistician and theorist should be extremely conservative in the comparison of one great class of property upon a rule of valuation based upon productiveness, upon uncertain and intangible elements, with tangible property under the antiquated and slipshod general property-tax system, if he would avoid conclusions that are unreliable and misleading. It is obviously difficult, if at all possible from a scientific standpoint, to frame an adequate rule of comparison between a rate of taxation on gross earnings and one on property value under the general property-tax system. The most elaborate attempts usually end in conjecture and an uncertain jumble of figures. A more independent consideration of a new method for the taxation of intangible or corporate property is essential to the determination of its adequacy and actual merits.

If the revenues of the State were to be raised from the incomes of persons and business, there would obviously be no comparison between the rates of taxation thereby imposed and the valuation of property under the general-property tax. This is, in a measure, true with respect to gross-earnings tax. The methods are based upon different principles. In the application of a scientific method of taxation to a great class of corporate property owners, the end to be attained is their subjection to a fair share of the burdens of government. To go beyond that is to place an embargo upon the prosperity of the commonwealth.

Justice and equality require that corporate property be fully and fairly taxed, but not necessarily by like methods with other property.

The comparisons frequently made, in the investigation of taxation, between methods or between results in different States under different systems, when carefully analyzed, often prove unsound, and in many instances would appear ludicrous were it not seriously proposed to frame a new system of taxation based upon such results.

Whether or not, under the present specific-tax law, the railroads of the State are bearing their portion of the public burdens compared with property assessed under the general law we do not assume to say, but merely suggest some of the factors which should be taken into consideration, the dangers to be avoided, and the methods employed for the purpose of determining the question of equality of taxation under these different systems.

GROSS RECEIPTS TAX.

The gross income, as defined by the State railway commissioner and sustained by the courts, is held to include substantially all the receipts of railroads of every kind or nature. The amount of gross receipts is fixed by computation based upon reports of the railroad companies. The law requires railroad companies to make such reports annually, and imposes a penalty for neglect to make them or for false reports.

The system of taxing gross earnings, as applied to railroads in Michigan, has been in force and operation since 1871. It is distinguished from the general property tax in that it is based directly upon income. With this basis the rate of taxation is fixed by law and does not depend upon the changing valuations of assessors or commissions selected under a political system. The specific tax so fixed can not be evaded. It is uniform. It reaches all property under it and subjects it to contribution. None can escape it.

RAILROAD REPORTS AND ACCOUNTS.

Soon after the adoption of the specific-tax system in Michigan, as applied to railroads, the necessity for a correct and uniform system of accounts and reports for the various railways doing business in the State, as a basis for just and equal taxation, for wise and judicious legislation, and for other obvious purposes was recognized.

The importance of this subject in this connection was clearly discerned by the Hon. W. B. Williams, railway commissioner of Michigan for 1877 to 1883, one of the ablest and most industrious commissioners the State ever had, who proceeded to formulate such a system of accounts and reports, and to cooperate with commissioners in other States to secure its adoption by railways generally.

As the tax upon gross earnings depended upon the reports of railroad companies to be taxed, the value of any system of reports that might be adopted depended upon the correctness of the accounts upon which they were to be made. To be of practical value for the purpose of a taxation basis or any other purpose, it was necessary that they be made up from a comprehensive and complete statement of

accounts upon the books of such companies, and not from estimates. It was necessary that such accounts be authentic and sufficiently complete in detail to furnish adequate means of checking and verifying them.

Many of the railroads of the State being parts of continuous lines passing into and through other States, a system of accounts to be of practical value must be uniform throughout all the States traversed by such roads.

For the purpose of establishing such a uniform system of reports and accounts, a convention of railroad commissioners was called, and at an adjourned meeting at Saratoga in 1879 the report of a committee on uniform reports, containing substantially the form of report and accounts previously used in Michigan, was adopted. The form there laid down was wrought out by commissioners with the aid of experts in railroad accounting, who had had many years of experience in keeping accounts of railroad companies and making reports to the States where they were located, with a view to making them as simple and comprehensive in their plan as possible, and at the same time supplying the information required.

This system was adopted by the convention, as well as by the officials of several States, and with such changes as from time to time became desirable has been in use in Michigan and some adjoining States to the present time.

Accounts are open to public inspection, appear in the public reports of State railroad commissioners, supply accurate and reliable information as a basis for taxation of gross earnings and for all other purposes, and through them is or may be derived the full benefit of publicity of the business and operation of railroads. As a remedy for abuse of corporate power or financial combination or manipulation, publicity of reports and accounts of these railroads exists to-day.

REPORT OF THE COMMITTEE OF RAILROAD COMMISSIONERS.

The convention of State railroad commissioners in 1878 appointed a special committee, consisting of Charles F. Adams, of Massachusetts, W. B. Williams, of Michigan, and J. H. Oberly, of Illinois, to examine into and report the methods of taxation as respects railroads and railroad securities then in vogue in the various States of the Union, as well as in foreign countries, and to report a plan for an equitable and uniform system for such taxation. The report of this committee, making special reference to Michigan, is justly celebrated in the literature of taxation; and it is so applicable in its description of the chaotic condition of railroad taxation to the various States at the present time that I desire to embody it herein:

"Shortly after the last convention of commissioners your committee issued a circular and accompanying interrogatories in relation to the matter referred to them for investigation, which were sent to all the State executives and to a large number of the railroad corporations of the country. Through the courtesy of the State Department at Washington the representatives of the National Government at the principal capitals in Europe were also called upon for information on the railway-tax systems there in use. As a result some 60 answers were in all received, covering the various States of the Union, Canada, England, France, Belgium, Holland, Germany, Russia, Switzerland, and Austria-Hungary. The information contained in these answers is much of it of great value, especially in the case of the documents relating to the systems of taxation in use in foreign countries. These the committee have printed in full as a part of the present report, as the facts and statements contained in them are not elsewhere to be found in any easily accessible shape. A compendium of the systems in use in all the States of the Union has been prepared, and likewise forms a part of this report.

"On examining this compendium of State systems in present use in this country it will at once be observed that they are much more varied than would naturally be supposed, or perhaps than would have been thought possible. Generally it may be said that there is no one principle running through the various systems described; and further, that there is no method of taxation possible to be devised which is not at this time applied to railroad property in some part of this country. So far as those now well-recognized principles which should be at the basis of all systems of taxation are concerned, they would as a rule seem to have been utterly ignored. In two adjoining States, for instance, with roads belonging to one company operating in both, will be found on one side of the line a system simple, direct, equitable, imposing a moderate and fixed burden from which there is no escape, while on the other side of the line will be met a system which can be said to be based on nothing more reliable than arbitrary guesswork. In certain States the railroads are apparently looked upon as a species of windfall, from which everything which can be exacted in the way of taxation is so much pure gain. In other States they escape with very slight and wholly disproportionate

burdens. The franchise tax, the gross and net earnings tax, the personal property tax, the realty tax, all are met with indiscriminately—applied sometimes by local boards, sometimes by boards of State equalization, but almost invariably in utter disregard of any principle.

"A more striking and in some respects discouraging example of general confusion as regards an important matter of fiscal legislation could hardly be imagined.

"The conclusions reached by the committee as the result of their investigations can be very briefly stated. The requisites of a correct system of railroad, as of other taxation, are that it should, in so far as it is possible, be simple, fixed, proportionate, easily ascertainable, and susceptible of ready levy. Very few of the systems now in use in this country were found to possess any of these requisites. So far from being fixed, they are, most of them, extremely arbitrary and fluctuating. Neither are they proportionate, as in some cases the measure of valuation is the market price of securities; in others, the arbitrary estimates of appraisers; in yet others, gross receipts, and in others, local assessment. That the tax should be almost impossible of ascertainment under these circumstances does not need to be said. As to being susceptible of ready levy, any tax assessed on and paid by a railroad corporation is that; but it would appear that a large portion of the taxes now nominally levied must either be evaded or else are in the nature of double taxation, for the securities on which they are assessed are, in the eye of the law, personal property, assessable at the residence of the owner. If, therefore, these securities, whether bonds or stock, are taxed to the corporation in the State where its road is situated, they are as personal property subject to a further tax in the place of the holder's residence, if he happens to reside in another State; if such securities are not taxed to the corporations, then, whether they are taxed at all must depend upon the honesty of the holder, wherever he lives, or the astuteness of the local taxgatherer. The utmost inducement to fraud and evasion is thus systematically held out. For the conscientious holder of stock or bonds there may be no escape from double taxation of the most oppressive kind, while for the unscrupulous the door for evasion is wide open.

"The conclusion at which your committee arrived was that all the requisites of a sound system were found in taxes on real property and on gross receipts, and in no others—in fact, that when these were properly imposed no other taxes were or could be necessary, as nothing would escape untaxed. Under this system the real estate of the railroad corporations held for corporate use, outside of their right of way, would be locally assessed exactly in the same way as the real estate of private persons or of other corporations adjoining it was assessed. There would be no distinction made in regard to it. It is the ordinary tax on real property. Beyond that a certain fixed percentage established by law and of general application should be assessed on the entire gross earnings of the corporations, and this should be in lieu of all forms of taxation on what is known as personal property. Under this system the rolling stock of the corporation would not be assessable, nor its securities, whether stock or bonds, either indirectly through the corporation or directly in the hands of those owning them. The entire burden, be the same more or less, would be imposed in one lump on the corporation and levied directly. It does not need to be pointed out that this system is perfectly simple; that under it taxation is fixed by a general law and not by local valuations; that it is thoroughly proportionate, inasmuch as the amount levied depends on the amount of gross receipts; finally, it can be ascertained by anyone, and can by no possibility be evaded.

"The apportionment of a levy on gross receipts among the several States through which a single railroad may run is, in this country, undoubtedly attended with much difficulty, and the committee have given careful consideration to the subject. The conclusion at which they have arrived is that it should be made a matter of mutual understanding among the States, and that, as the levies must be independent, they should be apportioned according to mileage. That is, real estate owned by each corporation, outside of its right of way, should be locally assessed where it is situated, without regard to the fact that it belongs to a corporation and is used for railroad purposes. The vast and costly terminal grounds in New York, Chicago, and all the other great trade centers, would thus be locally taxed at those centers, and on the basis of valuation for similar adjoining land there in use. Real estate in the country, on the other hand, would be taxed at the country or agricultural valuation. The realty outside of the right of way being thus disposed of for purposes of taxation on fixed principles easily understood, the entire gross earnings of the corporations should be subject to assessment by each State through which its road might run in the proportion in which the miles of road in that State bear to its whole number of miles. The percentage of the levy would

then be greater or smaller according to the law of the State, but the proportion of the whole amount upon which the levy was to be made would be fixed and always easy of ascertainment. The disposition of the tax thus levied, when paid into the hands of the State authorities—whether it should be retained in the State treasury or distributed among localities, either those through which the road might run or those in which the holders of its securities reside—would be matter for adjustment by legislation. It could either be retained in the State treasury or paid back into the local treasuries or the counties or towns in which the roads are located on mileage proportions or ratably distributed among all the municipalities of the State. It is a tax on transportation, whether of persons or property. It is very possibly as equitable a method of raising money by taxation as can be devised. If it could, therefore, once be uniformly and properly adjusted, the distribution of the results of the tax would present very few difficulties. All communities, and every part of each community are dependent, more or less directly, on railroad transportation. A general tax upon it, if properly imposed, would be felt not unequally by all, and might, perhaps, not unjustly be shared by all. As will be seen on reference to the accompanying reports, this method of imposing an indirect tax is not uncommon in Europe. In France, especially, a large revenue, which has amounted to more than \$20,000,000 a year, has been thus levied. This is not, however, properly a railroad tax, but rather a tax collected through the instrumentality of the railroads, the companies operating them being, in so far, used as taxgatherers.

"Recurring, however, to the railroad tax proper—that is, to the sum collected from the railroads as their fairly proportionate part of the common burden—where this tax is now levied as an entirety by the State government, the most usual method of distribution is to divide it among the counties and municipalities through which each road runs in proportion to the length of it therein. In Massachusetts the tax is paid over to the place of residence of the individual stockholder, and any undistributed balance is paid into the treasury of the State. In Michigan the whole amount of the tax is paid to and retained by the State, being devoted to special purposes. In Mississippi, where there is a franchise tax, one-half of it goes to the counties through which the road runs, the balance to the State. In New Hampshire, again, one-fourth of the tax is paid to the towns through which the road passes, in proportion to the amount expended in each town for right of way and taxes. The other three-quarters is divided among the towns in proportion to the stock owned therein. In this respect, therefore, as in all others, the existing State systems afford every variety of precedent. The distribution to be made of a tax after it is collected in no way, however, affects the proper method of collecting it. It must so largely depend on local exigencies that no general rule regulating it would seem to be possible.

"Finally, the committee will say, that of all the systems of taxation examined by them, those in use in England, among the countries of Europe, and in Michigan and Wisconsin, among the States of the Union, seem to them most intelligent and in conformity with correct principles. The Michigan and Wisconsin systems would seem to be especially commendable. The systems in use in many of the older States, on the contrary, and notably in the States of Massachusetts, New York, Pennsylvania, and Ohio, are very cumbersome, and present hardly any features worthy of study or imitation.

"That of Massachusetts, for instance, is based upon no recognized principle, would admit of evasions in a most obvious way, and is impossible of any general application. The fundamental idea with it is that the capital stock represents the property, and that its market value will, therefore, approximately measure it for purposes of taxation. A heavily-bonded road under this system practically escapes taxation; and again, where the stock is owned outside of the State in which the road is situated the tax levied on it inures not to the State of the owner's residence but to that in which the property is located. Under such a system it hardly needs to be said that the taxation fluctuates widely in amount, and that, the amount of debt behind the capital stock being disregarded, the burden bears no necessary relation to actual earning capacity, whether net or gross. Clumsy and devoid of scientific merit, as it unquestionably is, however, the Massachusetts system would seem to be preferable to that still in use in New York, concerning which the State assessors, in their annual report for 1878, expressed the opinion that under it there was 'no uniform rule for any road in any county, each assessor being governed entirely by his own views.' In certain towns the railroads appear to pay about one-third of the entire taxes, while the assessed valuation in 1878 varied from \$400 per mile to \$100 per rod. The 'difference in the assessment of the New York Central and Hudson River road, where for all purposes that the road can be used it is of the same value to the company, is \$24,000 per mile. In

short, it is scarcely an exaggeration to say that the assessments are as unlike as the complexion, temperament, and dispositions of the assessors.' It does not need to be pointed out that a system such as this, and it is the system in most general use, compels the corporations in self-defense to an active participation in local politics. Indeed, it is not too much to say that as a system it is open to almost every conceivable objection.

It does not seem necessary to proceed in the enumeration of States, as the objections to which the system of each is open will readily suggest themselves to anyone at all familiar with the principles of correct taxation, on reference to the accompanying abstract of those systems. It is very apparent that the subject of railroad taxation is one which, in this country, has as yet received very little mature consideration. With a view to affording some basis for better legislation, the committee submit with the accompanying documents, the following form of law, in which the phraseology of the Michigan statute has been very closely followed.

"C. F. ADAMS, Jr., of Massachusetts,

"W. B. WILLIAMS, of Michigan,

"JNO. H. OBERLY, of Illinois,

"Committee."

EXPRESS, TELEGRAPH, AND TELEPHONE COMPANIES.

Prior to 1899 express companies doing business in Michigan were required by law to procure each year from the State treasurer certificates of license or authority to do business, and, as a condition precedent to the issuing or renewal of certificates, to pay into the State treasury a specific tax on the gross amount received by them within the State for the year previous.

The amount of taxes paid by such companies in 1898 was \$3,608.53. In 1898 the rate was changed from 1 to 5 per cent on gross receipts, and the tax at the new rate in 1899 was \$18,680.56.

The companies doing business under this law within the State were the Adams, American, Canadian, Dominion, National, Pacific, United States, and Western.

Prior to 1899 every telegraph and telephone line built and operated within the State was required to furnish the auditor-general on or before the first Monday of July of each year a statement under oath showing the number of miles owned, operated, or leased, number of separate wires, number of stations, instruments in use, number of poles, and miles of wire used. Upon receipt of such statement a board of review, consisting of the auditor-general, State treasurer, and commissioner of the land office, assessed such lines at the true cash value thereof. The rate of tax levied and collected upon such assessment was what such board should determine to be the average rate of taxes, general, municipal, and local, throughout the State during the previous year, which rate was ascertained from the records of the auditor-general's office. This was payable to the State treasurer in lieu of all other taxes, State and local.

Under this law the average rate of taxation for 1897 was found by the system of computation employed to be 3 per cent, and the taxes payable by such companies for the fiscal year ending June 30, 1898, amounted to \$60,506.71.

In 1899 the average rate was fixed at 2.08 per cent, and the taxes in 1899 were \$70,058.81.

The telegraph and telephone law (in a test case hereinafter referred to under the heading "The Atkinson Law") was held to be unconstitutional by the supreme court in April, 1899, and in June of that year a new law for the taxation of express, telegraph, and telephone companies was passed.

By this new law every such company doing business in the State is required to furnish the auditor-general an annual sworn statement showing the following facts concerning its operation for the year.

In the case of express companies:

- (a) The name and locality.
- (b) The amount of capital stock, and amount paid in thereon.
- (c) The number of agencies or places of business in the State.
- (d) The amount of gross receipts on current business in the State for the previous year.
- (e) The total number of miles over which the company does business in the State.

In the case of telegraph and telephone lines:

- (a) The total number of miles owned, operated, or leased within the State.
- (b) The total number of miles in each separate line or division thereof, together with the number of separate wires thereon, and the counties through which the line is carried, and in which the business is conducted.

(c) The total number of telegraph or telephone stations on each separate line, and the number of instruments in use therein, together with the number of stations maintained.

(d) The average number of poles per mile.

(e) The number of poles and number of miles of wire used for each exchange or line.

(f) The amount of gross receipts on the current business in the State during the preceding year.

A penalty of \$1,000 is imposed upon any company failing or neglecting to make such report or making a false report, and a continued willful violation or refusal to make such report may be cause for forfeiture of its franchise.

A specific tax is imposed upon the "property and business" of such companies, operating within the State, "equal to an amount to be computed in the following manner:"

Upon the gross receipts of such companies derived from business within the State, 3 per cent thereof. This tax is in lieu of all other taxes upon the properties and business of such companies, except real estate not used in the operation of their business.

Under this law the amount of taxes charged against express companies for the fiscal year ending June 30, 1900, was \$14,806.83, and against telegraph and telephone companies \$44,753.64.

THE ATKINSON LAW OF 1899.

The reform of or change in the existing methods for the taxation of the property of railroads and other public corporations has been the subject of vigorous political controversy in this State during the past few years, and the legislature in 1899 passed a new law providing for the assessment and levy of taxes upon the property of railroad, express, telegraph, and telephone companies, making a radical change in the methods of taxation of such property, taking it out of the specific-tax system and bringing it under the general-property tax.

It provided for the appointment by the governor of a State board of assessors, consisting of 8 members, who should have access to the books, papers, and accounts of the departments of State, of counties, townships, and municipalities, with the power to examine witnesses under oath as to corporate property, and the right to examine books, papers, and accounts of any corporation owning property to be assessed by said board. It imposed upon said board the duty to assess all property in the State of railroad, express, telegraph, and telephone companies.

The board might inspect all the property belonging to such companies for the purpose of arriving at the true cash value thereof for the purposes of assessment and taxation; and for the same purpose might consider the reports and returns of said companies, the value of their stock as listed on the stock exchanges of New York and Boston, together with such other evidence as it might be able to obtain bearing upon the true cash value of the property, and make an assessment roll each year containing a list of all property by it assessed.

The board should then determine the aggregate taxes raised in the whole State for State, county, and municipal purposes for the current year, exclusive of special-improvement assessments; and for such purpose local officials were required to make special returns as the board might require. The board should determine the average rate of State, county, and municipal taxes throughout the State by dividing the aggregate taxes for the current year by an aggregate sum to be determined by adding to the total value of all property assessed under the act the equalized value of all property assessed in the State.

The board should then tax the property of the several companies as assessed by it at the average rate of taxation as determined by it, and the amounts so taxed should be paid to the State treasurer in lieu of all taxes for State and local purposes, not including special-improvement taxes; all such taxes to be applied, as under the existing specific tax system, to paying the interest on the educational funds of the State.

Every such company doing business in the State was required to file rigorous detailed annual statements under oath showing, among other things, the character, location, and officers of the organization; the number, par value, and market value of the shares of stock; detailed statements of real estate and value thereof; a full inventory of personal property, including money and credits owned; total value of real and personal estate outside of Michigan; in the case of railroad, telegraph and telephone companies, the whole length of their lines and the length of their lines without and within the State; statement of the entire gross receipts from business wherever done and the gross receipts in Michigan; in the case of express

companies, the length of lines of rail and water over which they did business, and the length of said lines without and within the State; and such other facts and information as the board might require.

It was specially provided that the franchises of the companies should be considered in determining the value of the property to be assessed, and in case of railroad companies owning and operating road partly within and partly without the State, the board should assess such companies for the fair proportion which their property in the State bore to their entire property. All such property was to be assessed at its true cash value, which was defined to mean the usual selling price at the place where the property might be at the time of assessment, at private sale and not at forced or auction sale. In ascertaining the value, the earning capacity of the property might be considered.

After the enactment of this law, known as the "Atkinson law," a test case was brought before the supreme court of the State under the telegraph and telephone tax law, which was somewhat similar to the Atkinson law, and that law was held to be unconstitutional and void, although it had been acquiesced in by the corporations and by the public from the time of its enactment in 1879, on the ground that being a tax on property, based on assessment, it was not a specific tax, but an ad valorem or property tax, and was not within the uniform rule of taxation prescribed by the constitution of the State, for the reason that it was based upon the average rate of taxation throughout the State, and not the local rate applicable to other assessed property.

This decision in the case of *Pingree v. Auditor-General*, April 25, 1899 (120 Mich., 95), was regarded as invalidating the Atkinson law.

The law as to the taxation of telegraph and telephone companies having been thus invalidated, the legislature enacted another law for the taxation of the property and business of express, telegraph, and telephone companies, which has already been referred to.

INSURANCE COMPANIES.

All insurance companies insuring lives within this State, and not deriving corporate existence from its laws, are required, at the time of filing their annual reports, to pay to the State treasurer a tax of 2 per cent on all premiums received from within the State, which specific tax is in lieu of all other taxes in the State.

Plate-glass, accident, live-stock, steam-boiler, and fidelity insurance companies are required to pay a specific tax of 2 per cent on the gross amount of premiums received each year.

All foreign insurance companies, fire, marine, life, and health, pay an annual specific tax of 3 per cent upon the gross amount of all premiums received from within the State.

There is no specific tax on insurance corporations organized in Michigan, the property of such companies being taxed under the general law. The total amounts of specific taxes derived from insurance companies during the fiscal year ending June 30, 1898 and 1899, were as follows:

Character of business.	1898.	1899.
Fire insurance companies	\$127,358.95	\$134,816.32
Life insurance companies	56,419.44	95,344.98
Miscellaneous companies	5,379.29	9,339.15
Total specific tax on insurance companies	219,152.68	239,500.45

RIVER IMPROVEMENT COMPANIES.

Corporations organized for the improvement of river navigation are required to pay to the treasurer of the State an annual tax at the rate of 1 per cent on the whole amount of capital paid upon their capital stock, estimated each year upon the last preceding reports of such corporations, which tax is in lieu of all other taxes upon their property.

The amount of this tax in 1899 was \$2,180.77.

MINING COMPANIES.

Formerly a specific tax for State purposes was imposed upon mining companies, in addition to the regular tax for local purposes, the rate being, upon copper 75 cents, on iron 1 cent, and on coal one-half cent per ton of product; but this specific

tax was repealed in 1891, since which time such companies have been subject to the general law for all taxes.

It is quite generally believed that their property under the general law is very inadequately taxed.

ROAD COMPANIES.

Plank and gravel road companies are required to pay to the State treasurer an annual tax of 2½ per cent of the gross earnings, on or before the first day of July in each year, in lieu of all other tax upon their property.

Upon such companies taxes were charged in 1898 amounting to \$921.63; in 1899, \$1,188.51.

FRANCHISE FEES.

Every corporation organized under any general or special law of the State, and every corporation permitted to transact business in the State, is required to pay a franchise fee of one-half of 1 mill on each dollar of the authorized capital stock of such corporation, and a proportionate fee upon any and each subsequent increase thereof, which fee shall in no case be less than \$5.

The amount of franchise fees received by the State under this law in the year 1897 was \$32,715.43; in 1898, \$22,140.75, and in 1899, \$99,511.85.

LIQUOR TAX.

There is a law in Michigan providing for the taxation of the business of manufacturing or selling spirituous or intoxicating liquors, or malt, brewed, or vinous liquors in the State, as follows: Upon the business of selling only brewed or malt liquors, \$500 per annum; upon the business of selling spirituous or intoxicating liquors at wholesale or retail, \$500 per annum; or at wholesale and retail, \$900 per annum; upon the business of manufacturing brewed or malt liquors for sale, \$65 per annum; upon the business of manufacturing spirituous or intoxicating liquors, \$800 per annum.

These taxes are paid in the several counties of the State, and the receipts reported annually to the auditor-general of the State by the county treasurers.

During the year closing December 1, 1896, the aggregate amount of such taxes paid to the county treasurers was \$1,839,960.92; year closing December 1, 1897, \$1,154,998.19; and December 1, 1898, \$1,827,667.13.

The above liquor taxes are designated as license fees, and persons paying them do not thereby secure any immunity from other methods of taxation.

INHERITANCE TAX.

The legislature in 1899 passed an act providing for the taxation of inheritances. It imposes a tax of 5 per cent upon the clear market value of any property, real or personal, of the value of \$500 or over, when transferred by will or by intestate laws from any person dying seized or possessed of the property while a resident of the State; or when the decedent was a nonresident of the State at the time of his death, if the property is within the State; or when the transfer is of property made by a resident, or by a nonresident whose property is within the State, by deed, grant, bargain, sale, or gift, made in contemplation of the death of the grantor or intended to take effect after death, with the following exception:

When the property passes by such transfer to or for the use of a father, mother, husband, wife, child, brother, sister, wife or widow of a son or the husband of a daughter, or to or for the use of any lineal descendant of such decedent or grantor born in lawful wedlock. such transfer of property is not taxable under this act, unless it is personal property of the value of \$5,000 or more, in which case it is taxable at 1 per cent of the clear market value of such property in excess of \$5,000. Provision is made for the collection of such taxes and their payment into the State treasury and application to payment of interest on the educational funds as other specific taxes are applied.

The constitutionality of this act has been sustained by the supreme court of the State in a recent decision.

The law went into effect so recently that the results of its operation have not yet been obtained can not be stated.

ILLINOIS.

The system of taxation which obtains in Illinois is that of the general property tax which has prevailed since the organization of the State.

The distinguishing feature is the local assessment of all real and personal property at a "fair" cash value in "the county, town, city, or district where it is usually kept."

The intent and purpose of the whole system of revenue laws seem to be to bring all kinds of property, individual or corporate, upon the assessment rolls of the various local-assessing districts at a uniform rate of taxation for State and local revenues.

These laws provide for the taxation of corporate property, whether of private or quasi-public corporations, in the same manner that the property of individuals is assessed and taxed. That is, all corporations doing business in the State are subject to assessment and taxation on all their tangible property at the place or places where the property is located.

The capital stock of all companies and associations incorporated under the laws of Illinois, except those for purely manufacturing purposes, the mining and sale of coal, printing or publication of newspapers, or the improving or breeding of stock, is, however, subject to assessment for its value, to be ascertained by the State board of equalization, deducting therefrom the assessed value of the tangible property assessed by local assessors.

The valuation of capital stock in excess of the valuation of tangible property of corporations is, however, apportioned for taxation among the various local assessment rolls and added to that of the tangible property valuations assessed locally, so that all assessments, State and local, appear on the local assessment rolls, and the rates of taxation authorized by the laws are extended upon such valuation.

The taxes extended against the property and capital stock and franchises of corporations, being thus mingled with those upon the assessed valuation of other property in that State, are not, as a rule, separately tabulated by the public officials of the State, and it is therefore difficult to present in a satisfactory manner the results of the system of taxation as to the property of corporations.

From this general statement it will appear that whatever defects of undervaluation or omission of property from the assessment rolls exist will extend to all classes of taxable property.

CONSTITUTIONAL RESTRICTIONS.

The constitution of the State places some limitations upon the power of the legislature in matters of taxation, declaring that the general assembly shall provide such revenue as may be needful by levying a tax by valuation, so that every person and corporation shall pay a tax in proportion to property valuation to be ascertained by persons selected in such manner as the assembly shall direct, and not otherwise; and authorizing various occupations, franchises, and privileges to be taxed in addition.

Property, in the constitution and revenue laws of the State, is held by the courts to include all values. While under these provisions of the constitution the revenue laws of the State have apparently been framed to bring all species of property under the general rule laid down, intended to apportion the tax upon the actual appraised value of all property, the constitution as construed by the courts permits some diversity of methods in the taxation of property and business, and gives considerable flexibility to the general rule.

For instance, it has been held that it is within the power of the legislature to exempt property from taxation or to commute the general rate for a fixed sum, the exceptional provision in the charter of the Illinois Central Railroad exempting ~~the property~~ from general taxation upon payment of a certain rate of taxation upon its gross earnings, has been sustained as being within the constitution. (17 Ill. Rep., 291.)

LOCAL ASSESSMENT SYSTEM.

The revenue laws of Illinois provide that the following classes of property, except such as may be exempt by law, shall be assessed and taxed:

First. All real and personal property in the State.

Second. All moneys, credits, bonds or stocks, and other investments, all shares of stock of incorporated companies, and all other personal property, including property in transitu, owned or controlled by persons residing in the State.

Third. Shares or capital stock of banks or banking companies doing business in the State.

Fourth. The capital stock of companies and associations incorporated under the laws of the State shall be assessed and taxed, except the property for public and charitable purposes which is exempt from taxation.

The real property subject to taxation, whether owned by individuals or corporations, is assessed locally where the property is situated, "valued at its fair cash value, estimated at the price it would bring at a fair voluntary sale." In valuing any property on which there is a coal or other mine, or stone or other quarry, the same is valued at such a price as such property, including the mine or quarry, would sell at a fair voluntary sale for cash.

A recent statute provides that all real property shall be listed and assessed for the year 1899 and every fourth year thereafter, which assessment shall be known as the general assessment, and, modified, equalized, or changed, as provided by law, shall be the assessment upon which taxes shall be levied, and during the quadrennial period for which the same is made.

PERSONAL PROPERTY.

Personal property subject to taxation is valued as follows:

First. All personal property, except as herein otherwise directed, shall be valued at the fair cash value.

Second. Every credit for a certain sum shall be valued at a fair cash value.

Third. Annuities and royalties shall be valued at their present total value.

Fourth. The capital stock of all companies of the State, except those required to be assessed by local assessors, is valued by a State board of equalization, so as to determine the fair cash value of such capital stock, including the franchises, over and above the assessed value of the tangible property of such companies, in all cases where the tangible property or capital stock of any corporation is assessed or taxed in the State. This clause does not apply to capital stock or shares of banks, and there is a further provision that companies organized for purely manufacturing purposes, or for the mining and sale of coal, or printing or publishing of newspapers, or for the improving or breeding of stock, shall be assessed by local assessors in like manner as the property of individuals is assessed.

LISTING.

The listing system is a distinguishing feature in Illinois taxation. Every person of full age, being a resident of the State, is required to list all his moneys, credits, bonds, or stocks, shares of stock of joint stock or other companies (when the capital stock of such company is not assessed in this State), moneys loaned or invested, annuities, franchises, royalties, and other personal property, and also all moneys and other personal property invested, loaned, or controlled as agent or attorney, or on account of any other person or company, and the moneys deposited subject to his order, check, or draft, or credits due from or owing by any person or corporation.

Personal property is listed and assessed in the county, town, city, village, or district where the owner resides, except such as is specially required to be listed and assessed otherwise.

The capital stock and franchises of corporations or franchises held by individual persons, except as otherwise provided, are listed where the place of business is located.

The property of manufacturers and others in the hands of an agent is listed where the business of such agent is carried on.

Personal property in transitu is listed and assessed where the owner resides.

The personal property of banks or bankers, brokers, stockjobbers, insurance companies, hotels, livery stables, saloons, eating houses, merchants, manufacturers, ferries, mining companies, and companies not especially provided for, is listed and assessed where the business is carried on.

The personal property of gas and coke companies, except the pipes laid down, is listed and assessed where the principal works are located. Gas mains and pipes laid in roads, streets, or alleys are held to be personal property, and listed and assessed in the town, district, city, or village where the same are laid.

The personal property of street railroad, plank road, gravel road, turnpike, or bridge companies is listed and assessed in the county, town, district, village, or city where the principal place of business is located. The track, road, or bridge is held to be personal property and listed where located.

The horses, stages, and other personal property of stage companies or persons operating stage lines are listed and assessed in the county, town, city, or district where they are usually kept.

And so with the personal property of express or transportation companies.

A deed of real estate, held as security for the payment of a sum of money, is regarded as personal property and listed and assessed as credits.

Persons having personal property are required to make out, under oath, a schedule of the numbers, amounts, quantity, and quality of all personal property in their possession or under their control required to be listed for taxation.

It is the duty of the assessor to determine and fix the fair cash value of all items of personal property, including all grain on hand. In assessing notes, bonds, accounts, and moneys he is governed by the rules of uniformity that he adopts in assessing other personal property.

If any person refuses to make such schedule under oath, the assessor lists his property according to his best judgment and information, and adds to the value of such list an amount equal to 50 per cent of such value, and severe penalties are imposed for making false schedules or refusing or neglecting to make them upon request.

FORM OF SCHEDULE.

The schedule, when completed by the assessor, contains, in separate columns, the enumeration of such property and the value thereof.

First. The number of horses, all ages.

Second. The number of cattle, all ages.

Third. The number of mules and asses, all ages.

Fourth. The number of sheep of all ages.

Fifth. The number of hogs of all ages.

Sixth. Every steam engine, including boilers.

Seventh. Every fire or burglar proof safe.

Eighth. Every billiard or other similar table.

Ninth. Every carriage or wagon, of whatever kind.

Tenth. Every watch and clock.

Eleventh. Every sewing or knitting machine.

Twelfth. Every piano forte.

Thirteenth. Every melodeon and organ.

Fourteenth. Every franchise and description thereof.

Fifteenth. Every annuity and royalty and description thereof.

Sixteenth. Every patent right and description.

Seventeenth. Every steamboat, sailing vessel, wharf boat, barge, or other water craft.

Eighteenth. The value of merchandise on hand.

Nineteenth. The value of material and manufactured articles on hand.

Twentieth. The value of manufacturer's tools, implements, and machinery (other than boilers and engines, which shall be listed as such).

Twenty-first. The value of agricultural tools, implements, and machinery.

Twenty-second. The value of gold or silver plate and plated ware.

Twenty-third. The value of diamonds and jewelry.

Twenty-fourth. The amount of moneys of bank, banker, broker, or stock jobber.

Twenty-fifth. The amount of credits of bank, banker, broker, or stock jobber.

Twenty-sixth. The amount of moneys other than of bank, banker, broker, or stock jobber.

Twenty-seventh. The amount of credits other than of bank, banker, broker, or stock jobber.

Twenty-eighth. The amount and value of bonds or stocks.

Twenty-ninth. The amount and value of shares of capital stock of companies and associations not incorporated by the laws of this State.

Thirtieth. The value of such property such person is required to list as pawn-broker.

Thirty-first. The value of property of companies and corporations other than property hereinbefore enumerated.

Thirty-second. The value of bridge property.

Thirty-third. The value of property of saloons and eating houses.

Thirty-fourth. The value of household or office furniture and property.

Thirty-fifth. The value of investments in real estate and improvements thereon.

Thirty-sixth. The value of all property required to be listed.

DEBTS DEDUCTED FROM CREDITS.

In making up the amounts of credits which any person is required to list for himself or any other person, company, or corporation he is entitled to deduct from the gross amount of credits the amount of all bona fide debts, except in the case of banks or those exercising banking powers or privileges. Such deductions are verified by the oath of the persons claiming the same.

MUTUAL BUILDING AND LOAN ASSOCIATION STOCK.*

Stockholders of these associations, whether organized under the laws of this State or any other State, list for taxation with the local assessors where they reside the number of shares of stock owned and the value thereof, which are assessed and taxed as other personal property.

In determining the value of such stock for the purpose of taxation the value of the real estate owned by the association is first deducted from its assets, and such real estate assessed as other real estate.

PROPERTY OF BANKS, BANKERS, BROKERS, AND STOCK JOBBERS.

These persons or corporations are required to make out and furnish the assessor a sworn statement showing:

First. The amount of money on hand or in transit.

Second. The amount of funds in the hands of other banks or others subject to draft.

Third. The amount of checks or other cash items not included in the foregoing.

Fourth. The amount of bills receivable, discounted, or purchased, and other credits.

Fifth. The amount of stocks and bonds of every kind and shares of capital stock of other companies held as an investment or in any way representing assets.

Sixth. All other property appertaining to said business other than real estate (which real estate is listed and assessed as other real estate).

Seventh. The amount of all deposits.

Eighth. The amount of all accounts payable other than current deposit accounts.

Ninth. The amount of bonds and other securities exempt by law from taxation.

The aggregate amount of the first, second, and third items in said statement is listed as moneys. The amount of the sixth item is listed the same as other personal property. The aggregate amount of the seventh and eighth items is deducted from the aggregate amount of the fourth item, and the amount of the remainder, if any, is listed as credits. The aggregate amount of the ninth item is deducted from the aggregate amount of the fifth item, and the remainder listed as bonds and stocks.

PAWNBROKERS.

All property held in pledge or security for money by pawnbrokers is listed and taxes charged to the pawnbrokers on the fair cash value of such property.

CAPITAL STOCK OF CORPORATIONS AND FRANCHISES OF PERSONS.

Bridge, express, ferry, gravel road, gas, insurance, mining, plank road, stage, steamboat, street railroad, transportation, turnpike, and other companies incorporated under the laws of this State other than banks, and the corporations required to be assessed by local assessors, in addition to other property listed, are required to make out and deliver to the assessor a sworn statement setting forth:

First. Name and location.

Second. Amount of capital stock authorized and number of shares.

Third. The amount of capital stock paid up.

Fourth. The market value, or if no market value, then the actual value of the shares of stock.

Fifth. The total amount of indebtedness, except that for current expenses.

Sixth. The assessed valuation of all tangible property.

Such statements are scheduled by the local assessor and returned to the county clerk, by him forwarded to the State auditor, and by him laid before the State board of equalization, which values and assesses such capital stock.

Every person owning or using a franchise granted by any law of the State is required to list same as personal property, giving the total value thereof.

STATE AND NATIONAL BANKS.

The stockholders in every bank, State and National, located within the State, are assessed and taxed on the value of their shares of stock therein in the place where the bank is located and not elsewhere. Such shares are listed and assessed subject to the restriction that taxation of such shares shall not be at a greater rate than of any other moneyed capital in the hands of individual citizens of the State of the place where such bank is located.

In each bank is kept a full and correct list of names and residences of its stockholders and number of shares held by each, which list is subject to inspection of assessors. And it is the duty of the assessor to ascertain and report to the county clerk a correct list of the names and residences of all stockholders, with the number and assessed value of all such shares held by each.

The county clerk to whom such returns are made enters the valuations of such shares on the tax list, and the names of the respective owners of the same, and computes and extends taxes thereon the same as against the valuation of other property in the same locality.

For the purpose of collecting such taxes it is the duty of every such bank to retain so much of every dividend belonging to the stockholders as may be necessary to pay any taxes levied upon their shares, or until it is made to appear to such bank that such taxes have been paid; and if said taxes shall not be paid the collector of taxes where such bank is located is empowered to sell said shares to pay the same like other personal property.

RAILROADS.

Every person, company, or corporation owning, operating, or constructing a railroad in this State is required in the month of May in each year to make out and file with the county clerks in the respective counties in which the railroad may be located a statement or schedule, under oath, showing the property held for right of way and the length of the main and all side and second tracks and turnouts in such county and in each city, town, or village through or into which the railroad may run, describing each tract of land in manner provided by the law and stating the value of improvements located on the right of way.

Such right of way, including the superstructure of main, side, or second track and turnouts and the stations and improvements of such company on such right of way, is held to be real estate for the purposes of taxation, and denominated "railroad track," and is so listed and valued.

The value of such "railroad track" is listed and taxed in the several counties, towns, villages, districts, and cities in the proportion that the length of main track in such place bears to the whole length of the road in the State, except that the value of the side or second track, and of all station houses, depots, machine shops, or other buildings belonging to the road, is assessed in the county, town, village, district, or city in which they are located.

The movable property belonging to a railroad company is held to be personal property, and denominated, for the purpose of taxation, "rolling stock." Each railroad is required to return a list or schedule each year, containing a correct detailed inventory of all its rolling stock, which must distinctly set forth the number of locomotives of all classes, passenger cars of all classes, sleeping and dining cars, express cars, baggage cars, horse cars, and all other kinds of cars.

This "rolling stock" is listed and taxed in the several counties, towns, villages, districts, and cities in the proportion that the length of the main track used or operated in the county, town, village, district, or city bears to the whole length of the line used or operated.

The tools and materials for repairs, and all other personal property of any railroad, except "rolling stock," is listed and assessed in the county, town, village, district, or city where the same may be on the 1st day of May. All real estate, including the stations and other buildings and structures thereon, other than that denominated "railroad track," is listed as lands or lots, as the case may be, where the same is located.

Thirty-first. The value of property of companies and corporations other than property hereinbefore enumerated.

Thirty-second. The value of bridge property.

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Thirty-fourth. The value of household or office furniture and property.

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Third. The amount of checks or other cash items not included in the foregoing.

Fourth. The amount of bills receivable, discounted, or purchased, and other credits.

Fifth. The amount of stocks and bonds of every kind and shares of capital stock of other companies held as an investment or in any way representing assets.

Sixth. All other property appertaining to said business other than real estate (which real estate is listed and assessed as other real estate).

Seventh. The amount of all deposits.

Eighth. The amount of all accounts payable other than current deposit accounts.

Ninth. The amount of bonds and other securities exempt by law from taxation.

The aggregate amount of the first, second, and third items in said statement is listed as moneys. The amount of the sixth item is listed the same as other personal property. The aggregate amount of the seventh and eighth items is deducted from the aggregate amount of the fourth item, and the amount of the remainder, if any, is listed as credits. The aggregate amount of the ninth item is deducted from the aggregate amount of the fifth item, and the remainder listed as bonds and stocks.

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First. Name and location.

Second. Amount of capital stock authorized and number of shares.

Third. The amount of capital stock paid up.

Fourth. The market value, or if no market value, then the actual value of the shares of stock.

Fifth. The total amount of indebtedness, except that for current expenses.

Sixth. The assessed valuation of all tangible property.

Such statements are scheduled by the local assessor and returned to the county clerk, by him forwarded to the State auditor, and by him laid before the State board of equalization, which values and assesses such capital stock.

Every person owning or using a franchise granted by any law of the State is required to list same as personal property, giving the total value thereof.

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The stockholders in every bank, State and National, located within the State, are assessed and taxed on the value of their shares of stock therein in the place where the bank is located and not elsewhere. Such shares are listed and assessed subject to the restriction that taxation of such shares shall not be at a greater rate than of any other moneyed capital in the hands of individual citizens of the State of the place where such bank is located.

In each bank is kept a full and correct list of names and residences of its stockholders and number of shares held by each, which list is subject to inspection of assessors. And it is the duty of the assessor to ascertain and report to the county clerk a correct list of the names and residences of all stockholders, with the number and assessed value of all such shares held by each.

The county clerk to whom such returns are made enters the valuations of such shares on the tax list, and the names of the respective owners of the same, and computes and extends taxes thereon the same as against the valuation of other property in the same locality.

For the purpose of collecting such taxes it is the duty of every such bank to retain so much of every dividend belonging to the stockholders as may be necessary to pay any taxes levied upon their shares, or until it is made to appear to such bank that such taxes have been paid; and if said taxes shall not be paid the collector of taxes where such bank is located is empowered to sell said shares to pay the same like other personal property.

RAILROADS.

Every person, company, or corporation owning, operating, or constructing a railroad in this State is required in the month of May in each year to make out and file with the county clerks in the respective counties in which the railroad may be located a statement or schedule, under oath, showing the property held for right of way and the length of the main and all side and second tracks and turnouts in such county and in each city, town, or village through or into which the railroad may run, describing each tract of land in manner provided by the law and stating the value of improvements located on the right of way.

Such right of way, including the superstructure of main, side, or second track and turnouts and the stations and improvements of such company on such right of way, is held to be real estate for the purposes of taxation, and denominated "railroad track," and is so listed and valued.

The value of such "railroad track" is listed and taxed in the several counties, towns, villages, districts, and cities in the proportion that the length of main track in such place bears to the whole length of the road in the State, except that the value of the side or second track, and of all station houses, depots, machine shops, or other buildings belonging to the road, is assessed in the county, town, village, district, or city in which they are located.

The movable property belonging to a railroad company is held to be personal property, and denominated, for the purpose of taxation, "rolling stock." Each railroad is required to return a list or schedule each year, containing a correct detailed inventory of all its rolling stock, which must distinctly set forth the number of locomotives of all classes, passenger cars of all classes, sleeping and dining cars, express cars, baggage cars, horse cars, and all other kinds of cars.

This "rolling stock" is listed and taxed in the several counties, towns, villages, districts, and cities in the proportion that the length of the main track used or operated in the county, town, village, district, or city bears to the whole length of the line used or operated.

The tools and materials for repairs, and all other personal property of any railroad, except "rolling stock," is listed and assessed in the county, town, village, district, or city where the same may be on the 1st day of May. All real estate, including the stations and other buildings and structures thereon, other than that denominated "railroad track," is listed as lands or lots, as the case may be, where the same is located.

county collectors, in a book provided for that purpose, the same as is required for railroad property.

The office furniture and other personal property of such companies is listed and assessed in the county, town, district, village, or city where the same is used or kept.

The aggregate amount of capital stock of telephone companies assessed by said board is distributed proportionately among the several counties entitled to a proportionate value of such stock and the tax extended and distributed by the county clerks to the several towns, etc.

INSURANCE COMPANIES.

Every agent of any insurance company is required to return to the proper officer of the county, town, or municipality in which the agency is established annually the amount of net receipts of such agency for the preceding year, which is entered on the tax list, and is subject to the same rate of taxation that other personal property is subject to at the place where located, said tax being in lieu of all town and municipal taxes.

INHERITANCE TAX.

A tax is imposed upon legacies and inheritances passing to husband or wife or lineal descendants, of \$1 on every \$100 of the clear market value of such property received by each person, providing that any estate valued at a less sum than \$20,000 shall not be subject to any such taxes, and the tax is levied only upon the excess of \$20,000 received by each person. In case of the property passing to nearly related collateral heirs, the tax is \$3 on every \$100 of the clear market value of property received by such persons in excess of \$2,000.

In all other cases the rate is as follows: On each and every \$100 of the clear market value of property on all estates of \$10,000 and less, \$3; on all estates of over \$10,000 and not exceeding \$20,000, \$4; on all estates over \$20,000 and not exceeding \$50,000, \$5, and on all estates over \$50,000, \$6—no tax being imposed on an estate valued at less than \$500.

ASSESSMENT OF PROPERTY.

In counties not under township organization the county treasurer is ex-officio county assessor, and with the advice and consent of the county board divides his county into convenient districts and appoints a deputy assessor for each.

In counties under township organization of less than 125,000 inhabitants the county treasurer is ex-officio supervisor of assessments in his county; he must have a suitable office, in which the assessment books returned to him are kept, subject to inspection of all persons, and with the advice and consent of the county board he appoints necessary deputies and clerks, whose compensation is fixed by the county board and paid by the county. In such counties where a town assessor is unable alone to perform all the duties of his office, he may, by the advice and consent of the town board of auditors, appoint suitable persons to act as deputies.

The compensation of the township assessors is fixed by law as follows:

In townships of not less than 5,000 inhabitants, not less than \$5 nor more than \$10 per day, provided that in townships containing more than 15,000 inhabitants additional compensation can be allowed, the entire compensation not to exceed \$1,000. In townships of less than 5,000 inhabitants they receive not less than \$2.50 nor more than \$5 per day.

In counties containing 125,000 or more inhabitants there is a board of assessors consisting of 5 persons elected, each of whom receives a salary of \$3,600 per annum, which board has power to employ a chief clerk and such other clerical help as may be necessary, such chief clerk receiving compensation fixed by the board not exceeding \$10 per day. This board has power to appoint as many suitable persons as in its judgment is necessary to act as deputies, whose compensation shall not exceed \$5 per day.

The law provides that personal property shall be valued at its fair cash value, less such deduction as is allowed by law to be made from credits, which value is set down in one column to be headed "full value," and one-fifth part shall be set down in another column headed "assessed value."

Real property is valued at its fair cash value, estimated at the price it would bring at a voluntary sale in the due course of trade, and one-fifth of this is placed in another column which is headed "assessed value."

The State board of equalization follows the same method of valuation and division.

The one-fifth value of all property so ascertained and set down is the assessed value for all purposes of taxation, limitation of taxation, and limitation of indebtedness prescribed in the constitution or any statute.

This method of valuation and division is presumably to curb borrowing propensities of municipalities, and we are informed that it was a political suggestion for the purpose of obtaining popular support by allaying suspicion of increased taxation.

The county clerks in the several counties are required to estimate and determine the rate per cent upon the proper valuation of the property in the respective towns, townships, districts, cities, and villages in their counties that will produce not less than the net amount of the several sums required.

INEQUALITIES AND INIQUITIES IN ASSESSMENT.

If laws would in and of themselves secure full and uniform assessment of property, and equality and justice in taxation under the general property tax, it will be seen that these results should obtain in Illinois. The fact is, however, that no State in the Union exhibits greater inequality, discrimination, and injustice in taxation than Illinois under this system.

The laws are not enforced, each assessor being regarded as "a law unto himself." There appears to be the greatest discrimination in the assessment of both individual and corporate property, while enormous masses of both classes escape taxation entirely. If there is any uniformity in the assessment of property it is that of inequality, discrimination, and concealment. Charges not only of laxity and unfairness, but of venality, against assessors, especially in Chicago and Cook County, are so general and widespread as to make their truthfulness a matter of general assumption.

The practice in assessment of property discloses not only competitive undervaluation, escape, and disregard of all laws and standards by assessors generally throughout the State, but a continual strife for advantage between those of Chicago and Cook County, where a large proportion of the wealth of the State is centered, and those in the "other counties of the State," with the result up to date greatly in favor of the former.

The evils and absurdities to which this system of gross undervaluation and inequality inevitably leads, are especially well illustrated in Chicago, where it is said assessed valuations often fall as low as one hundredth of the true value and bear no apparent relation to any fixed basis.

It is shown that equalized assessed valuation of real estate in Cook County in 1873 was \$228,399,663, and in 1893, \$210,048,322, a decrease of 8.91 per cent; that of personal property in 1873 was \$55,076,340, and in 1893, \$39,879,887, a decrease of 27.59. During the period from 1870 to 1890, the population of Cook County increased 240.58 per cent, and it is fair to assume that the increase in wealth more than kept pace with the growth of population.

During the same period the decrease in the assessed valuation of real estate outside of Cook County was 39.78 per cent, and that of personalty 54.59 per cent, although the increase in population was but 24.86 per cent.

It is stated that fifty Chicago concerns, each rated from one to several millions, were assessed in 1897 at a total of less than \$100,000.

Ex-Senator Charles B. Farwell is quoted as saying with respect to the personal-property assessment of a well-known north-side man, who, from his age and experience, had to a great extent assumed charge and direction of municipal and public morals, that he had personally signed and verified a return of \$2,600 of personalty, while his financial agent had invested for him more than \$600,000 in mortgages alone; and of another neighbor that he was connected with a business enterprise paying at the rate of 6 per cent on an investment of \$5,000,000, yet his property appeared upon the rolls at a valuation of \$18,000. "It is such cases as this," Mr. Farwell said, "that shows the utter futility of the present system."

An ex-corporation attorney of Chicago stated in a public address: "Equal taxation is now impossible. The evil of venality has become a rank scandal in our municipal governments. The power to assess at one-tenth or one-hundredth of the cash value is used by assessors to 'touch' property owners." A member of the firm of Siegel, Cooper & Co. is quoted as saying "There is one day in the year when we respectable business men all commit perjury—that is the day when we make returns to the assessor respecting the amount of our property."

From statements of 27 Chicago State banks in 1893 it is shown that the net taxable credits amounted to \$1,058,105.25, while the net credits listed amounted

to \$10,000, a difference of \$1,048,105.25. While the taxable money of these banks was \$18,991,771.67, the money listed by all banks of Chicago, exclusive of National banks, was only \$43,925.

Illustrations of similar discrepancies might be shown with reference to the assessment of other moneys and credits.

It is said that much greater discriminations in the assessment of personality, especially that of an intangible character, are made in Cook County than throughout the rest of the State.

A commission of prominent real estate experts appointed by Mayor Swift, made a report published in the Chicago Economist, April 25, 1896, relative to all the real estate in the business district bounded on the east by the lake, on the north and west by the Chicago River, and on the south by Twelfth street. Exclusive of railroad property and land exempt from taxation, the value of the land was found to be \$337,343,890 and the assessment 7.33 per cent of this. In the suburbs the rate is found to be somewhat higher, while in the rest of the State the rate of assessment is from 25 per cent to 35 per cent of the true value.

In the winter of 1897 a special session of the Illinois general assembly was held for the purpose of passing a new revenue law, which was intended to remedy many of the defects in assessment complained of in Chicago, but the new law does not seem to have reached the root of the evil, as the total assessed valuation of Cook County was less by \$17,623,946 in 1898 than in 1897.

The defects and inconsistencies in the assessment of capital stock and tangible property of corporations are shown by reports to be equally glaring.

For instance, Chicago street railways are shown to have been assessed in 1896 at 4.70 per cent of the par value of their outstanding obligations and at about 8.23 per cent of their market value.

A voluminous report on taxation was issued by the bureau of labor statistics of Illinois in 1894 and 1896, containing a great mass of statistical information upon the subject which forms the basis of many radical and questionable conclusions, and is filled with somewhat extravagant and emotional disquisitions of the author upon nearly every conceivable economic subject. While the contents of this report must be taken with some degree of allowance, and would hardly rank as authority in taxation literature, in it is shown by statistics laboriously gathered from various sources the utter failure of the Illinois system to attain anything like equal and just taxation of either individual or corporate property. The report is declared by the author to furnish "much evidence of criminal discrimination in the operation of the present revenue system, resulting in some cases in practical confiscation and in others in virtual exemption from the burdens of government," and he adds that "whatever may be the variation in degree the iniquities of the taxation system of this State are common to all other States and countries of the civilized world."

Among the principal remedies proposed in the report is that State and local taxation be completely divorced by confining the source of State revenues to franchises.

ASSESSMENT OF THE CAPITAL STOCK OF CORPORATIONS.

The following is a statement of the equalized value of capital stock over and above the equalized value of tangible property of corporations other than railway companies for 1899:

Amount of capital stock paid up as reported by companies	\$302,470,405
Full value of capital stock as fixed by State board of equalization ..	182,575,625
Assessed value of capital stock as fixed by State board of equalization (one-fifth)	36,515,125
Equalized value of tangible property assessed by local assessors	24,166,923
Net assessment of capital stock, being excess of equalized value of capital stock over tangible property, assessed by local assessors	2,848,203

In 1898 the value of tangible property assessed was only \$12,260,575, while the capital stock in excess of that sum was only \$2,433,425.

From this statement it seems clear that the greater portion of the vast amount of corporate property, tangible and intangible, does not appear on the rolls at all.

The amount of paid-up capital stock of corporations, other than railroad companies, is exceedingly small for such a wealthy industrial State as Illinois compared with that obtained through methods of valuation adopted in other States, while the full value of such capital stock as fixed by the State board of equalization is only about two-thirds of the capital stock value as reported by the compa-

nies. The assessed valuation is one-fifth of the full value as fixed by the board, while more than nine-tenths of the assessed valuation represents real estate and tangible property, and less than one-tenth represents the equalized valuation of all capital stock in excess of the tangible property assessed by local assessors who see it.

This system would therefore appear to be entirely inadequate for the just and equal taxation of corporate property, and fails to impose upon such property a due proportion of the burdens of government.

The tangible property of corporations is practically the sole basis of their taxation and this is taxed under the same methods applied to other property, which, even though all such property were reached and assessed at its cash value, can hardly be regarded as an adequate measurement of the ability of corporations to pay.

PERSONAL PROPERTY ASSESSED IN 1899.

Statement of property assessed for the year 1899 in the several counties as returned to the auditor's office.

Horses	\$10,127,085
Cattle	11,850,995
Mules and asses	957,769
Sheep	453,729
Hogs	2,285,546
Steam engines and boilers	1,345,255
Fire and burglar proof safes	181,199
Billiard, etc., tables	40,546
Carriages and wagons	2,791,644
Watches and clocks	594,873
Sewing and knitting machines	583,966
Pianos	1,206,235
Melodeons and organs	896,306
Franchises	51,569
Annuities and royalties	9,994
Patent rights	45,394
Steamboats, sailing vessels, etc	248,332
Merchandise	85,494,478
Material and manufactured articles	4,248,488
Manufacturers' tools and implements and machinery	8,895,314
Agricultural tools and implements and machinery	2,644,515
Gold and silver plate and plated ware	127,860
Diamonds and jewelry	867,418
Moneys of bankers, brokers, etc	3,758,946
Credits of banks, bankers, brokers, etc	8,474,843
Moneys of other than bankers, etc	17,742,210
Credits of other than bankers, etc	26,541,451
Bonds and stocks	4,469,734
Shares of capital stock of companies not of this State	1,607,690
Pawnbrokers' property	53,944
Property of corporations not enumerated	8,625,081
Bridge property	275,374
Property of saloons and eating houses	819,190
Household and office furniture	11,583,445
Investments in real estate and improvements	427,174
Grain of all kinds	6,894,768
Shares of stock of State and national banks	10,830,797
All other property	13,133,831

Total value of personal property

183,526,987

We make this statement to illustrate the detailed classification provided for the purpose of reaching personal property and bringing it upon the rolls.

Aggregate equalized assessed value of lands in 1899 in the several counties	\$314,509,323
Equalized assessed value of town and city lots	878,742,282
Assessed value of personal property	183,526,987

Total property valuation, 1899

871,778,591

Equalized assessments.

Character of property.	1897.	1898.
Personal property.....	\$117,402,907	\$114,902,419
Lands.....	308,520,973	300,211,800
Town and city lots.....	291,138,354	284,372,391
Railroads.....	78,582,786	76,554,845
Capital stock of corporations.....	4,050,833	2,433,425
Total.....	799,695,853	778,474,910

The total assessed valuation of property in 1886 was \$798,568,498.

It is a matter of common knowledge that the actual value of even real estate and tangible property in such a growing State as Illinois has greatly increased since 1886, while intangible property has been enormously augmented during that period.

Manifestly, this general property-tax system is in effect a tax upon real estate and tangible property, while intangible forms of property, in which a large portion of the wealth of the State undoubtedly consists, apparently largely escape direct taxation under the methods employed. Where large masses of property escape, in consequence other large classes of property must be excessively taxed.

The assessed valuation of tangible property and capital stock of corporations of the State except railroads is only about one-third of the assessed valuation of all the personal property of the State, which clearly indicates that such property is greatly undervalued as compared with the assessed valuation of other personal property. It must be remembered that this is a flourishing and industrial State full of large and growing cities, and, like other States of its class, a large portion of the business is conducted by corporations.

The whole system, so far as shown by the reports, clearly illustrates the grave inconsistencies, inequalities, and injustice which almost inevitably result from the ineffectual attempt to raise the income of the State by a tax assessed at a uniform rate on all the manifold species of property existing to-day; a system productive of great injustice unless substantially all property, personal and real, tangible and intangible, is brought upon the tax rolls.

The practical results of such a system as this are characterized by the Supreme Court of the United States in the case of the Pacific Express Company v. Seibert, 142 U. S., 351, as follows: "This court has repeatedly laid down the doctrine that diversity of taxation, both in reference to the amount imposed and the various species of property selected, either for bearing its burdens or from being exempt from them, is not inconsistent with a perfect uniformity and equality of taxation in the proper sense of these terms; and that a system that imposes the same tax upon every species of property, irrespective of its nature or condition, or class, will be destructive of the principle of uniformity and equality of taxation, and of a just adaptation of property to its burdens."

Some interesting observations may be drawn from the foregoing schedule of personal property assessed. It is largely made up of assessments of different classes of tangible property. The amount of "moneys of banks, bankers, brokers," etc., assessed is no larger than the assessed valuation of the "hogs, sheep, and mules" of the State; while the assessed valuation of both moneys and credits of banks, bankers, brokers, etc., is not equal to that of either "horses," "cattle," or "household goods" of the State. It may be conclusively assumed that all of these divisions of property are greatly undervalued in assessment, but it is altogether probable that horses, cattle, and hogs and similar forms of tangible property are more fully valued and that a much greater portion of such property is assessed.

Many other inconsistencies are apparent in this schedule. The value of shares of stock in State and national banks is about equal to the value of horses, while the value of all moneys, credits, bonds, and stocks is ridiculously low, even allowing for the method provided by statute of assessing at one-fifth actual valuation.

The total assessed value of personal property for 1899 was \$183,526,987, about one-third greater than that of 1896 and 1897, while the valuation of real estate in 1899 was \$688,251,604, more than three and two-thirds times that of personal property. In Cook County, including the city of Chicago, the following values appear:

Total assessed value of—	
Personal property, 1899.....	\$78,611,662
Lands.....	17,164,987
Town and city lots.....	285,717,467
Total property, 1899.....	376,494,036

Among the divisions in the schedule of assessed personal property for Cook County appear the following:

Franchises	\$3, 127
Annuities and royalties	000
Merchandise	24, 284, 078
Moneys of bankers, brokers, etc	652, 426
Credits of bankers, brokers, etc	1, 919, 433
Moneys of others than bankers, brokers, etc	4, 203, 385
Credits of others than bankers, brokers, etc	7, 875, 889
Bonds and stocks	2, 685, 699
Household and office furniture	4, 887, 189
Shares of stock in State and National banks	5, 719, 183

From these statements it is difficult to escape the conclusion that personalty is greatly undervalued or escapes taxation as compared with real property, and that corporate property is even more glaringly undervalued or omitted than personal property in general.

From the statement of Cook County, it appears that the personal property is only about one-fifth of the whole property and about one-fourth of the value of the real estate of that county.

It is shown that the general property tax system of the State as applied to all species of property is in effect a tax upon real estate and a portion of the tangible personal property, while the intangible forms of property, in which a large part, sometimes estimated at one-half, of the wealth consists, successfully evade taxation of a direct character.

The aggregate amount of taxes charged on the tax books in the year 1897 was:

State taxes	\$5, 816, 764. 08
Local taxes	41, 820, 826. 87
Total	47, 187, 090. 95

The average rate of taxation in the several counties, compiled by the State auditor from the returns received from the various county clerks, was, for 1896, \$4.20 on the \$100, and in 1897, \$4.41.

Dr. Ely refers to an essay of Dr. Simon N. Patten on the finances of the States and cities, published in Jena, Germany, in 1878, which deals chiefly with taxation in Illinois, and which he says reveals a state of things in that Commonwealth precisely like that described in other States. The assessed valuation of Illinois in 1875 was as follows:

Cattle	\$80, 000, 000
Railroads	60, 000, 000
Real estate	780, 000, 000
All other property	165, 000, 000
Total	1, 085, 000, 000

Real estate and railroads paid 78 per cent of the taxes, cattle 7 per cent, leaving only 15 per cent for all other property, which is, of course, absurd.

Attention is called to the fact that assessors and collectors of taxes are elected for 1 year only, by a system of rotation, and that they are devoid of that experience which is an indispensable condition of a faithful performance of duty. The fact that one has enjoyed office for a year is regarded as a good reason why some one else should have a chance. Voters good-naturedly consider a special misfortune which has befallen one of their number, or any special need, as a sufficient reason why he should be elected, and from motives of pity weak and inefficient men are elected. This appears, as far as the author's observation has extended, to be common everywhere in the United States.

Dr. Patten draws the justifiable conclusion that the failure of the system of taxation in Illinois is accounted for by the nature of the system itself, and that there must be a change to produce any considerable improvement. The practice of confining one's self to the one direct tax on the assessed value of property must, he thinks, be abandoned.

The statements of valuation and taxation we have given from the reports of public officials indicate that there is little or no improvement in the taxing system in Illinois since the examination by Dr. Patten.

ILLINOIS TAX COMMISSION.

In 1885 a tax commission was appointed by Governor Oglesby, which made a very careful examination of the revenue laws of Illinois, and in 1886 filed its report recommending some radical changes. The report was written by Milton Hay, an eminent lawyer of that State, and is entitled to high rank in the literature of the taxation of American States.

Some of the defects set forth and changes recommended are of especial interest to all interested in the subject of State taxation:

"First. The gross inequality in the assessments of different pieces of property of the same kind, owned by different individuals in the same community, and of different kinds of property regardless of ownership; as, for instance, real estate and personalty, a large proportion of the personalty escaping taxation."

It is alleged that realty of different individuals is assessed from two-thirds or even the whole of its actual value down to one twenty-fifth of its value, the owner of one piece paying 5 or 6 per cent of the whole capital invested, while the owner of another pays one-fourth or one-fifth of 1 per cent, distinctions too invidious to be meekly borne.

Equally glaring and unjust discriminations are shown as between personal property and realty in favor of the former, amounting in some species of that class to almost total escape from taxation.

The system of equalization dealing with the aggregate assessment of different classes of property, raising or lowering each class in equal proportion by a fixed and arbitrary percentage, further discriminates against the higher assessments and in favor of the lower.

The liability to inequitable assessments is further increased by a system of undervaluation or low-rate assessments. Inequalities that would be so suggestive as to be almost self-corrective as between full values escape change when fractional value obtains, and the low rating virtually acts as an estoppel of complaint on the part of the property owner, though rated higher than his neighbor.

It is said that no remedy for this improper valuation seems possible unless some method be devised for divorcing the collection of State and local revenues.

"Without such a divorcement, no provisions of the law, however stringent, and no penalties which would be possible or desirable as sanctions of the law, would produce the desired result."

Hence the revenue system constructed and proposed by the commission is based upon the separation of State and local taxes.

Another defect pointed out is in the methods employed under the present system in the assessment of corporate and intangible forms of property.

It is suggested in substance that there are now vast aggregations of capital of such a nature that their value can hardly be measured by methods applicable to other kinds of property. That corporate property can not be estimated in like manner as farm acres, cattle, or a stock of goods. That the separation in such cases of tangible property from intangible, and the assessment in parts by different assessors or boards, can not be rationally or successfully made. "The two elements of value belong together. If torn apart the township assessor deals with a dead body and the State board with a departed spirit."

Railroad, telegraph, telephone, express, and insurance companies should be treated for taxation as units, and estimated or valued by some method consistent with their nature and the extent and complexity of their affairs.

Another defect in the existing system is the want of a competent body having a general oversight of the entire business of assessment and the collection of \$30,000,000 of annual revenue of the State.

The commission recommends the abolition of the office of township assessor and the substitution of county assessors, elected for 4 years and to be ineligible for reelection, with sufficient pay to command the services of competent and reliable men, who shall be provided with offices at county seats and accessible there throughout the year, and who, with deputies throughout the county appointed by them, shall assess the property of their respective counties.

Also, that better instrumentalities for ascertaining the value of property be provided, and to that end that each county be divided into small assessment districts, and detailed maps, plats, and assessments be kept open for inspection by taxpayers, so that they can see their own and other assessments.

That adequate means be provided for the correction of any injustice or inequality that may arise in assessment, and that a competent board of review be provided in each county.

The commission adheres to the existing system of assessment of corporations local in character, such as manufacturing, agricultural, or publishing companies,

by local assessors, on the same basis and in the same manner that individuals are taxed, and also recommends that the capital-stock tax be limited to corporations of a quasi-public character, and that of such corporations those local in character, such as street railways, gas companies, etc., be assessed by the county assessors instead of by a State board.

In regard to the assessment of personal property of individuals, the commissioners recommend that schedules be required and a substantial penalty be imposed for false schedules, but that the requirement of the oath to such schedules be abandoned. They believe such requirement to be "debauching to the conscience and subversive of the public morals."

To railroad property, they say, the ordinary rules of valuation have little application, the true criterion of value and the best basis of taxation being found in their receipts.

After a careful study of railroad statistics and much attention to the subject of the average proportion between gross receipts, expenditures, and the capitalized value of railroads, they deduce the conclusion that a rate of taxation equal to the average rate throughout the State of Illinois, imposed upon five times the amount of the gross receipts of a railroad in that State or upon the Illinois portion of the gross receipts of an interstate road, would be just and more flexible than an arbitrary percentage, provided that such rate of taxation should not exceed 5 per cent of such gross receipts.

It is proposed to determine the average rate of taxation in the State by adding together all the taxes levied in the State and dividing the amount of the tax by the total assessed value of all the property in the State.

It is suggested that this rule would be fair and just if all the property in the State were assessed at its full cash value, as the law requires, but that if in any portion the assessment should fall below the full value (a result quite possible in Illinois) the average rate would be increased in proportion, and railroads would be held to the same rate on full valuation that other property pays on partial valuation; to guard against which injustice the limitation of 5 per cent of gross receipts is proposed.

In reviewing this proposed method for the taxation of railroads, the suggestion occurs that in all cases of divorcement of incompatible or irreconcilable elements or systems it is always advisable to make the separation complete and avoid any lingering conflict or misery.

The proposition for the taxation of other quasi-public corporations is as follows:
Telegraph, \$3 on each instrument.

Express, $2\frac{1}{2}$ per cent of the gross receipts.

Public warehousemen, one third of 1 cent for every bushel of capacity of each elevator or granary.

The commissioners also recommend certain limitations upon the various classes of taxes for the protection of "taxpayers from the rapacity of unprincipled tax consumers."

They finally recommend the appointment by the governor of a State board of tax commissioners for general supervision of the taxation system of the State.

It is apparent that this commission was more or less influenced and felt somewhat handicapped by the desirability of retaining, so far as practicable, the machinery of existing laws for taxation so as to avoid friction in bringing about changes, and to propose only such changes as would not involve changes in the organic law of the State.

Unfortunately for the State, the legislature as yet has not adopted the changes recommended by the commission, and any substantial change in the existing system appears to be difficult to bring about because of political and sectional considerations, although public opinion seems to be favorably affected by the work and agitation of such men as composed this commission.

WISCONSIN.

The primary method which obtains in this State for raising the greater portion of public revenue is the general property tax upon assessed valuations; the greater portion of the property in the State, real and personal, including general corporate property, being subject to such direct tax through local assessment.

Few important changes or modifications in the general property-tax system have been made. There has been no systematic effort to make the system "worse" by "improving it," as Professor Ely might say.

The other distinctive method of taxation is a system of license fees, so called, in lieu of taxes by the valuation method. The interests coming within this method are chiefly corporations of the class commonly designated as public service or quasi-public corporations, and include railroad, street-railway, telegraph, telephone, electric light and power, sleeping-car, boom, trust, and guaranty companies, and life, fire, and navigation insurance corporations, which will be considered separately.

Certain constitutional restrictions are imposed upon the legislature with reference to the subject of taxation, the principal ones being that it is prohibited from enacting any but general laws for the assessment or collection of taxes, and that such laws shall be uniform in their operation throughout the State; and that "the rule of taxation shall be uniform, and taxes shall be levied upon such property as the legislature shall prescribe."

Under these constitutional limitations it has been held that the legislature can not authorize the valuation for taxation of one class of property on a different basis or ratio to true valuation from that applied to other property in the same taxing district. But it has also been held that the constitutional requirement of uniformity is not violated by the taxation of a particular class or kind of property by a different method from that employed in taxing other property, provided the law is uniform in its operation throughout the State.

Thus the existing method for the taxation of the property and franchises of railroads and other corporations, by a fixed percentage of gross earnings paid wholly to the State in lieu of all other taxes, is constitutional.

GENERAL PROPERTY TAX.

Under the general property-tax system, State taxes, except those raised by other methods, hereinafter set forth, are levied by legislative enactments, and apportioned to the several counties according to the value of taxable property therein, as fixed by the State board of equalization; and these taxes, together with taxes for county, township, city, and village purposes, are based upon assessments on real and personal property, in the several local taxing districts, by local assessors who are elected except when otherwise provided in special city or village charters, the township or ward constituting, as a rule, a single assessment district. In the general property-tax system, here as elsewhere, the assessment is the foundation for the entire structure.

PROPERTY LIABLE TO ASSESSMENT.

All property in the State not specially exempt by statute is liable to assessment for taxation, real and personal property being for that purpose specifically and comprehensively defined, the latter including all debts due or to become due from solvent debtors, however evidenced or secured, and "all goods, wares, merchandise, chattels, or effects of any nature or description having any real or marketable value."

There are the usual exemptions of public property, the taxation of which would serve no useful purpose; exemptions in aid of religious, benevolent, industrial, and other institutions deemed to be beneficial to society; special exemptions designed to promote certain industries, which include property devoted to the manufacture of beet sugar for a limited period, property invested in the manufacture of oxide of zinc or metallic zinc from native ores, for limited periods,

investments in mutual savings funds or building and loan associations, etc.; exemptions of personal effects regarded as necessities, and exemptions of property taxed by some method other than directly by property valuation.

ASSESSMENT.

In general, real and personal property are taxed separately in the usual manner.

For the purposes of local taxation a corporation is deemed to be a resident in the district in which it has its office or place of business.

Shares of stock in banking associations or corporations organized under State or Federal laws are assessed to the owners at local rates in the district where the bank is located.

To enable the assessors to assess bank stock to the proper persons, bank officers are required to furnish them with a statement showing name and residence of each shareholder and the amount of stock held by him.

As a rule, assessments of real and personal property are made by estimate of the local assessors, some general statutory provisions being made for the assistance of the assessors.

It is provided that "the articles of personal property shall as far as practicable be valued by the assessor upon actual view at their true cash value." The assessor is not confined to such property as he may discover, but if he has reason to believe that any taxable has other property liable to taxation, he may increase the assessment as in his judgment appears to be just and equitable. He has authority to examine the property owner under oath as to the items and value of all his personal property liable to taxation, other than money, notes, bonds, mortgages, and other securities.

In case of his refusal to testify, or in case the assessor should desire further evidence, sworn evidence from others having knowledge of the matter may be taken.

To enable the assessor to determine the amount of money, notes, mortgages, or other credits or securities for which any person should be assessed, and the amount of indebtedness to be deducted therefrom, he is required to make a statement under oath of the average amount of such money, etc., and the average amount of indebtedness which he may be entitled to deduct for each month of the year ending May 1, and the net average thus ascertained is assessable for taxation.

No penalties are provided for failure or refusal to perform these duties except that the assessor is liable to a fine if he accepts the statements as to moneys, credits, etc., without its being signed and sworn to, and a property owner who intentionally makes a false statement is liable to a forfeit of \$10 for each \$100 worth of taxable property thereby withheld from the knowledge of the assessor.

Valuation of real and personal property, 1898.

Class of property.	Valuation by local assessors.	Valuation by State board.
Total assessed valuation of real estate.....	\$519,990,522	\$482,288,081
Total assessed valuation of personal property	108,518,489	117,716,969
Total.....	628,504,011	600,000,000

Total town, city, village, and county taxes levied for 1897 \$14,818,899.28

State taxes apportioned to counties 2,241,427.55

Total 17,060,326.78

Abstract of assessment rolls, 1898.

Personal property:

Tangible—

Horses	\$10,575,848
Neat cattle.....	11,422,904
Mules and asses	45,600
Sheep and lambs	756,985
Swine.....	1,406,377
Grain, etc.....	283,168
Leaf tobacco	68,197
Private libraries.....	81,029
Watches	371,721
Wagons, etc	8,117,814
Furniture	166,784

Personal property—Continued.

Tangible—Continued.

Pianos, organs, etc	\$1,974,169
Saw logs	2,873,944
Timber	419,957
Railroad ties	5,455
Telegraph poles	15,085
Steamboats	531,076
Merchants' and manufacturers' stock	32,098,269
Other tangible property	10,562,221
Total tangible	76,726,188

Intangible—

Money	7,163,444
Bonds and mortgages	13,514,227
Bank stock	7,583,890
Other intangible personal property	3,520,740

Total intangible **31,787,301**

Total personal property **108,513,489**

Real estate:

City and village lots	261,897,460
Lands	258,593,063

Total real estate **519,990,523**

Grand total **628,504,011**

Statement of assessed valuations in Wisconsin from 1854 to 1898.

Year.	Assessed val- uation of all real estate.	Assessed val- uation of per- sonal property.	Aggregate as- sessed valuation of all property.	Equalized valuation of all property.
1854	\$19,821,969.00	\$2,796,741.00	\$22,618,710.00	\$64,285,714.00
1855	34,068,597.00	4,172,184.00	38,240,781.00	87,500,000.00
1856	48,692,747.00	5,524,455.00	54,217,202.00	150,000,000.00
1857	63,661,609.00	6,256,411.00	69,918,020.00	150,000,000.00
1858	138,352,106.94	23,525,533.73	161,907,639.70	175,000,000.00
1859	138,929,806.96	13,607,893.04	152,537,700.00	163,620,283.70
1860	142,763,784.43	27,506,761.66	170,270,546.04	184,062,536.00
1861	127,647,554.74	24,092,610.44	151,740,165.18	180,984,454.38
1862	128,527,156.19	24,331,861.55	152,859,017.74	182,507,222.13
1863	121,533,782.70	25,481,640.04	147,015,422.74	158,071,773.42
1864	121,101,804.42	31,838,025.10	152,939,829.52	152,652,752.00
1865	121,455,806.97	32,811,313.33	154,266,620.30	157,416,297.97
1866	125,363,097.13	36,260,857.01	161,623,954.19	162,320,153.51
1867	160,847,686.76	50,824,841.71	211,672,478.47	196,851,160.97
1868	146,091,701.00	49,020,474.00	195,112,175.00	244,440,774.00
1869	243,494,454.00	82,737,142.00	326,231,596.00	244,440,774.00
1870	247,546,705.00	79,218,533.00	326,765,238.00	455,900,800.00
1871	252,745,793.00	76,757,910.00	329,503,703.00	455,900,800.00
1872	256,796,026.00	81,201,828.00	337,997,854.00	390,454,875.00
1873	260,006,809.00	80,613,943.00	340,620,252.00	390,454,875.00
1874	264,690,375.00	81,786,989.00	346,476,464.00	421,285,369.00
1875	259,596,729.00	77,827,663.00	337,424,392.00	421,285,369.00
1876	278,249,295.00	79,566,340.00	357,815,635.00	423,596,290.00
1877	274,417,873.00	77,362,481.00	351,780,354.00	423,596,290.00
1878	359,263,374.32	96,077,208.00	455,340,582.32	413,102,796.00
1879	318,175,245.00	88,127,940.00	406,303,185.00	438,971,801.00
1880	335,932,572.00	89,747,571.00	425,680,143.00	445,562,720.00
1881	337,124,810.00	92,775,636.00	429,900,445.00	447,804,968.00
1882	346,252,895.00	100,507,690.00	446,760,585.00	456,325,171.00
1883	364,319,935.00	107,128,573.00	471,448,508.00	459,540,157.00
1884	378,853,894.00	109,096,472.00	487,950,366.00	476,896,854.00
1885	378,948,279.00	111,153,504.00	490,101,783.00	488,139,614.00
1886	399,831,764.00	104,713,164.00	504,544,928.00	531,264,749.00
1887	420,506,397.00	107,829,316.00	528,337,713.00	578,229,855.00
1888	435,202,277.00	103,164,010.00	538,366,287.00	577,092,815.00
1889	443,948,601.00	113,022,341.00	556,970,942.00	592,890,719.00
1890	467,527,974.00	112,811,568.00	579,339,542.00	623,859,417.00
1891	483,834,891.00	107,120,453.00	590,955,344.00	664,000,000.00
1892	493,639,922.00	103,808,297.00	602,448,219.00	654,000,000.00
1893	506,444,480.00	118,262,633.00	624,707,113.00	654,000,000.00
1894	516,224,315.00	116,474,813.00	632,699,128.00	608,473,526.50
1895	518,525,693.43	114,821,913.33	633,347,607.76	600,000,000.00
1897	519,669,155.00	110,066,353.00	629,735,508.00	600,000,000.00
1898	519,990,522.00	108,513,489.00	628,504,011.00	600,000,000.00

An analysis of this statement will disclose the character of the work of assessment and equalization of property in this State coming within the general property-tax laws. The exceedingly low valuation of all real and personal property in this large and wealthy State, being but \$600,000,000, and the ratio of real to personal property reveal at a glance the inefficiency and inequality of assessment. A Wisconsin assessment roll has been described as a "patchwork of arbitrary undervaluation."

As illustrations of the gross inequalities in the assessment of personalty, it is stated by the tax commission of 1898 that 18 counties in the State failed in 1897 to make any return under the head of average amount of moneys in possession and on deposit, while the official reports show that there was on deposit in the banks in those counties the sum of \$5,663,861.99.

The total amount assessed under this head in the State that year was \$7,163,444, while the reports of the national, State, and private banks showed the amounts of deposits to have been \$74,878,795.55.

There were 21 counties that did not return any notes, bonds, or mortgages.

LICQUOR-LICENSE FEES.

Separate provision is made for the granting of licenses for the sale of intoxicating liquors by town and village boards and by the common councils of cities. The fee which may be charged is in towns ordinarily \$100, and in villages and cities \$200 per year, which amounts may be increased to not more than \$400 in towns and not more than \$500 in cities and villages by vote of the electors, under certain conditions and restrictions.

The funds derived from such license fees are directed to be used primarily for the support of the poor, but in practical working the moneys so derived virtually go into the general fund of the town, city, or village in which the license is granted. The following is an incomplete statement of the amounts so raised:

Amount collected in 546 towns and villages in 1897.....	\$584,748.70
Amount collected in 100 cities in 1897.....	979,162.02
Total.....	1,563,910.72

POLL TAX.

Another source of revenue is a poll tax upon male residents between 21 and 50 years of age, with certain exemptions, amounting to \$1.50 per poll each year. This law is not enforced in all parts of the State, and its repeal is advocated. In 1897, out of 1,187 towns and villages in the State, only 493 made any attempt to collect poll taxes, and the total amount they collected was \$95,871.75. Of the 111 cities only 39 reported any poll tax raised in 1897, and the total amount obtained was the sum of \$12,578.37.

In that year there was not one county in which all the taxpaying districts raised a poll tax, and there were 8 counties in which there was not a dollar of such tax collected.

DEFECTS IN THE PROPERTY-VALUATION SYSTEM.

Some valuable lessons may be drawn as to the practical working of the general property-tax system by reference to defects in that system in operation in Wisconsin, pointed out by the Wisconsin tax commission in its able and valuable report of 1898, from which much of the information herein contained is derived.

Under that system the amount of tax which each person is to pay is apportioned upon the basis of the taxable property which he owns. The assessment is at the foundation of this taxing system. It is shown that property under local assessment is valued upon widely different bases, but that vast amounts are annually left off the assessment rolls entirely.

For the purpose of testing the efficacy of assessment laws in this regard, comparison is made between the United States census reports of 1890 and the State census of 1895.

Total true valuation of all property, 1890.....	\$1,833,308,523
From which was deducted value of railways, telegraphs, telephones, etc.....	333,308,523

Leaving estimated true value of taxable property..... 1,500,000,000

Showing the discrepancy between the true valuation as thereby stated and the assessed valuation of property assessed locally in 1890 to be substantially \$1,000,000,000.

It is stated by the commission that on account of this unequal valuation and omission of property from the assessment rolls, statistics and daily experience show that the people least able to bear the burden of taxes are often those upon whose shoulders these burdens are laid most heavily. "Because the possessions of the poor man are few and tangible and in plain sight they are all carried into the assessment roll, while the stocks, bonds, mortgages, and other valuable securities of the wealthy man for the most part escape the assessor's notice."

Statistics are produced by the commission showing that about three-fourths of the live stock owned by the farmers is assessed upon the rolls at about 60 per cent of the total true value as fixed by the State census, and comparison is made between that class of property and bank deposits, the amount of individual deposits at a given date being shown as follows:

In the National banks	\$26, 633, 453. 86
In the State banks	24, 589, 141. 45
In private banks	4, 587, 542. 64
Total	55, 754, 187. 95

According to the report of the secretary of state, the total assessed value of money in possession and on deposit on the same date was only \$3,032,103, or a little over 5 per cent of the true value of deposits alone.

It is estimated that the amount of personal property in Wisconsin is fully equal in value to real estate, yet the amount assessed is only 17 per cent, or about one-sixth, of the total property assessed and has been steadily decreasing for several years. Aside from the vast amount of intangible property omitted from the rolls, it is stated that there are millions of dollars worth of tangible, visible property which at present escapes taxation through the imperfection and looseness of the laws. The vicious practice of undervaluation and unequal valuation by local assessors is clearly pointed out and severely condemned by this commission:

"The habit of undervaluation is one of such long standing that in most assessment districts sets or series of arbitrary valuations for assessment purposes having become established, those originating in slight departures from true values have been changed from time to time, according to the notions of successive assessors, previous assessments being taken as a guide or standard rather than actual values, until the whole becomes but a mass of arbitrary figures. Assessment valuations have thus come to be a fact, and are commonly considered and treated as something apart from and unrelated to actual values.

"The feeling on the part of the assessor that he is bound by no definite rule or standard begets indifference and carelessness, gives bias or prejudice free play, and with the easy-going or intentionally dishonest official affords both room and cover for favoritism and partiality. The members of the tax commission have found frequent instances of an almost open and avowed practice of favoring particular interests and industries or classes of property by low assessments, such discrimination being justified upon grounds of supposed public policy. Of course there are localities where the assessments have for years been made or supervised by men of character and ability, and in these no glaring inequalities exist. But in very many instances, perhaps in the majority of cases, the assessment has come to be hardly more than a farce. But this so-called assessment roll, with a piece of perjury attached in the form of the assessor's oath, is solemnly accepted as the basis on which citizens are asked, and virtually forced, to make their contribution to the heavy and constantly increasing burden of taxation. The perjury documents are also supposed to form the basis of the county equalization and ultimately the basis for the apportionment of State taxes. They are, in fact, in most instances discredited and almost wholly disregarded. The legislature itself recognizes their unreliability by directing the abstracts of assessments to be supplemented by statistics of population and such other loose data as may be gathered to aid boards of equalization to guess at the value of taxable property in the various districts.

"The county assessment becomes a disgraceful struggle between the members of the county board, each striving to help his own district at the expense of the others. The members of the county board from the towns are often arrayed against those from the city and whichever side is in the minority immediately proceeds to make more towns or wards, as the case may be, in order to get more votes."

"Nor does the evil end with the county assessment. The arbitrary and unreliable local assessments, supplemented by the equally unreliable county assessment, constitute the principal data upon which the State board of equalization must make its assessment."

Dr. R. T. Ely, in his work on *Taxation in American States and Cities*, in discussing taxation in Wisconsin, refers to a statement made to him by a gentleman of prominence and an officeholder in that State, as follows: "You see in me a monument of the iniquity of our present system of taxation. When I was a poor and struggling young man with \$500 or \$600 worth of personalty, I paid on all that I had, but now that I really have something I keep still and pay taxes on only a part of my property. Indeed, when I think about taxation, I feel like turning anarchist and blowing things up with dynamite."

For the purpose of providing a remedy that would reach the "root of the evil" and prevent undervaluation of property, the tax commission of 1898 recommended radical changes in the laws of property assessment and a rigid listing of personal property by owners.

TAXATION OF NOTES, BONDS, MORTGAGES, AND OTHER SECURITIES.

This subject of commanding interest to the people of all States where such securities are locally taxed under the valuation system is ably discussed by the Wisconsin tax commission as to its effect in that State. The omission of this kind of property from assessment is said to be the most noticeable of all defects in the administration of the tax laws in Wisconsin, and it is shown that such property largely escapes taxation entirely.

From 1877 to 1897 the aggregate assessed valuation of real estate in Wisconsin increased from \$274,417,883 to \$519,990,552, or about 89½ per cent. During the same period the assessed value of personal property increased from \$77,362,481 to \$108,513,489, or only about 40½ per cent. Assuming that the aggregate true value of personal property is ordinarily at least equal to that of real estate and keeps pace with it in a growing Commonwealth, these facts indicate not only that personal property is very largely withheld in this State, but that the practice is steadily growing.

In 1897 the total assessed value of money, credits, notes, bonds, and mortgages in the State was \$20,677,671. This amount is about 19½ per cent of all personal property and is only 8½ per cent of the assessed value of all real and personal property.

"The small fraction of this class of property actually assessed is chiefly owned by persons who have not acquired the art of evasion or whose scruples will not permit them to evade the law, and those whose situation is such that their property affairs are for the time being exposed to inspection, as in the case of estates in the probate court and the like.

"The pernicious custom of undervaluation of all classes of property fosters and promotes the practice of evasion.

"Again, very large numbers of people regard the taxation of moneys loaned and full taxation also of the property upon which the loan is secured as double taxation which they have a moral right to evade. As the property itself can not ordinarily be hidden, the intangible thing, the mortgage, is kept out of sight if possible."

MORTGAGES.

Under the system existing in this State a mortgage of real estate is deemed personal property, and is liable to taxation as such according to its value. The real estate covered by the mortgage is also liable to taxation according to its value, without reduction on account of the mortgage.

While no definite data are obtainable from assessment statistics to show the value of mortgages actually assessed for taxation, it is shown that only a very small proportion of mortgages liable to taxation in Wisconsin are in fact assessed.

The commission, after this showing, state that "a considerable number of the ablest investigators have frankly declared that the direct taxation of intangible assets as property by the valuation method is wholly impracticable as to those who seek to evade, and very unjust as to those who do not. But the greater number of suggestions and demands have been for more stringent laws and more drastic methods to compel individuals to disclose what they have of this kind of property, and to compel assessors to discover and assess the same. State legislatures have frequently enacted laws of this character and many States have for years maintained most rigid systems in this respect, but in no case have we found that substantial or satisfactory results have been obtained. Professor Ely, in his work on taxation, speaking of such systems, says: 'It is characteristic of this system that the more you perfect it the worse you make it.'"

The commission, after discussing the experience of Ohio, New York, California, and Massachusetts on the taxation of such securities, says: "While fully concurring in the conclusion reached in the other States that an attempt to tax

directly most forms of intangible assets is only partially successful, and that so far as successful the law operates quite unequally, we are still unable to recommend the repeal of the laws for the taxation of such property at the present time. Our chief reason for this is the want of a complete substitute meeting our approval."

The commissioners recommend as a partial substitute an inheritance tax. They also recommend that the entire administration of the tax laws be placed in the hands or at least under rigid supervision of capable and disinterested agents of the State, to give their entire time to official duty, such agents to consist of a State board or officer and such subordinate officers as may be necessary.

TAXATION OF CORPORATIONS.

Except as otherwise specially provided, corporations pay taxes upon property valuations in the same way as natural persons, and this applies to foreign corporations doing business in the State as well as to those organized under the laws of the State. But stock in such corporations as are required to pay taxes upon their property in the same manner as individuals is expressly exempted from taxation.

As to all corporations taxed upon property valuation, there are no special provisions for a tax on corporate franchises.

Upon organization domestic corporations pay a fee of \$25 per thousand dollars of capital for incorporating if the capital stock is \$25,000 or less, and \$1 per thousand in addition for each \$1,000 of capital stock over and above \$25,000.

Foreign corporations desiring to do business within the State file with the secretary of state an authenticated copy of their articles of association, and pay therefor a fee of \$35. These fees applied to corporations are not regarded as a franchise tax.

The real property of corporations is required to be taxed in the assessment district where located at local rates.

Personal property belonging to foreign corporations is assessed in the assessment district where the agent in charge resides; or if none, wherever such property is located.

The personal property of domestic corporations is assessed in the district where the principal office or place of business is located, by local assessors, and is taxed at local rates.

The legislature, recognizing from the earlier experience of the State the impracticability of assessing such property in separate parts or the franchises separately, recently made special provisions as to mains, hydrants, pipes, and other fixtures and appurtenances of waterworks, gas, and electric light plants not owned or operated by any municipality. Such property, and all real estate necessarily used in the operating of such plants, including machinery, corporate franchises, if operated by a corporation—in short, the entire property of such a company—is required to be valued and assessed together as a single item or unit and as personal property in the assessment district where the principal place of business is located.

Further special provisions are made for the apportionment of such values where the mains, pipes, poles, wires, etc., of such companies are partly in one and partly in another taxing district. Such property is taxed at local rates upon such assessed valuations in the same way as other personal property.

RAILROADS.

In 1854 a statute was passed by which "the legislature committed itself to the theory of taxing railroads on the basis of gross earnings." This system has since been adhered to and still prevails, changes in taxation rates having been made from time to time and railroads classified according to amount of gross earnings per annum.

The tracks, right of way, depot grounds and buildings, machine shops, rolling stock, and all other property necessarily used in operating any railroad in this State, belonging to any railroad company, including pontoon and pile pontoon railroads, are exempt from taxation for any purpose, except special assessments for local improvements in cities and villages, such property coming under the license system. All lands owned or claimed by any such railroad company not adjoining its track are subject to all taxes.

Every railroad company and every person operating a railroad in the State, except railroads operated by horse power, is required to make and return to the State treasurer, upon blanks to be furnished by the treasurer, before the 10th day of February in each year, a true statement of the gross earnings for the preceding calendar year, of the number of miles of road operated by such company or

person, and the gross earnings per mile per annum during such year. Such statement must be verified by the oath of the secretary or treasurer of the company or of the person so operating such railroad.

Upon the return of such statement and payment of the license fee hereinafter stated such company or person is entitled to and receives from the State treasurer a license to operate such railroad for the calendar year commencing on the 1st day of January preceding.

The annual license fees required to be paid are as follows:

1. Four per cent of the gross earnings of all railroads, except those operated on pile and pontoon or pontoon bridges, whose gross earnings equal or exceed \$3,000 per annum per mile of operated railroad.

2. Three and one-half per cent of the gross earnings of railroads, except those operated on pile and pontoon bridges, whose gross earnings equal or exceed \$2,500 and less than \$3,000 per annum per mile of operated railroad.

3. Three per cent of the gross earnings of all railroads, except those operated on pile and pontoon or pontoon bridges, whose gross earnings equal or exceed \$2,000 and are less than \$2,500 per annum per mile of operated railroad.

4. Five dollars per mile of all operated railroads, except those operated on pile or pontoon bridges, whose gross earnings equal \$1,500 per mile per annum and are less than \$2,000 per annum per mile of operated road, and in addition $2\frac{1}{4}$ per cent of their gross earnings in excess of \$1,500 per annum per mile and under \$2,000 per mile per annum.

5. Five dollars per mile of operated railroad by all companies whose gross earnings are less than \$1,500 per mile per annum.

6. Two per cent of the gross earnings of all railroads which are operated on pile and pontoon or pontoon bridges, which gross earnings shall be returned as to such parts thereof as are within the State.

This license fee is based upon the gross earnings from operation *in the State*, including such proportion of earnings from interstate traffic as is calculated to have been earned within the State.

One-half the license fee is required to be paid at the time the license is issued, and one-half before the 10th day of August in each year.

The penalty attached for neglect to obtain such license or to pay the fee therefor, or any part thereof, is declared to be the forfeiture of the sum of \$10,000 to the State, to be recovered by an action brought by the attorney-general therefor, and the forfeiture of all rights, privileges, and franchises; but such company or person so neglecting may make such return and pay such license fee upon application to the court in which such action to declare the forfeiture is pending, and upon such terms as such court shall direct.

The blanks furnished by the State treasurer for such statement, and which must be fully filled out, require the statement of gross receipts to be itemized, showing receipts separately from passengers, mails, express companies, freight, use of cars, sleeping-car companies for transportation of sleeping cars, and from all other sources, specifying the same; also the gross receipts as earned or received each month, the number of miles in operation on December 31 next preceding, and the number of miles built and operated in the preceding calendar year.

The money derived from such taxation is paid into the general fund of the State, and is applied to the general State expenses, thus giving all districts of the State equal benefit from such taxation by reducing the amount of State taxes, whether or not such districts are traversed by railroads.

This general distribution of railroad license fees is the cause of some complaint, because of the amount of such property centered in the cities. A partial answer is made that railroads are peculiarly subject to the control of the State, derive their valuable franchises from the State, and at times are vitally dependent upon the State for protection.

As hereinbefore stated, this method of taxation has been held to be constitutional. While the method as applied to railroads carrying on interstate commerce can hardly be conceded by railroad companies to be within the Federal Constitution, it has been generally acquiesced in as reasonably satisfactory. Indeed, we were informed by public officials of that State that railroad companies generally preferred to be taxed by this method, even though the amount of taxes imposed should be as large or even somewhat larger than under the general property tax, because of its simplicity, reliability, certainty, and cheapness to both State and railroads.

From the table compiled by a tax commissioner appointed by the legislature of Wisconsin in 1898 to investigate and report upon the subject we find that railroads of the first class, the cost of construction of which aggregated \$275,013,119, paid a tax of \$1,238,065.14, or about forty-five one-hundredths of 1 per cent of such cost.

Roads of the third class, costing \$1,051,432, paid a tax of \$3,005.81, or about twenty-eight one-hundredths of 1 per cent of the cost.

Roads of the fourth class, costing \$11,506,940, paid a tax of \$4,645.82, or about four and one-third one-hundredths of 1 per cent of the cost.

Roads of the fifth class, costing \$15,253,962, paid a tax of \$2,487.61, or one and six-tenths one-hundredths of 1 per cent of the cost.

There are no roads belonging to the second class.

The yield of the railroad taxes for the years 1882-1898 is shown by the following table:

Fiscal year ending September 30—

1882.....	\$586,828.58
1883.....	683,082.51
1884.....	754,269.44
1885.....	733,195.57
1886.....	747,870.99
1887.....	763,994.56
1888.....	1,068,632.96
1889.....	947,772.04
1890.....	1,008,559.04
1891.....	1,140,046.64
1892.....	1,230,674.88
1893.....	1,156,260.75
1894.....	1,438,758.66
1895.....	1,175,752.52
1896.....	1,172,798.62
1897.....	1,265,094.54
1898.....	1,247,857.03

The gross earnings of Wisconsin roads for 1898 were \$35,191,000 and the net earnings \$12,225,000.

The taxes paid that year were \$1,247,357, or about one-tenth of the net earnings.

As stated elsewhere, the cost of this class of property affords no reliable criterion of its true value. This is illustrated by the business condition of Wisconsin railroads. While some are operated with profit and pay large dividends, others are not, and some are in the hands of receivers, this class of property being of such peculiar character, its corporate elements of value so fluctuating and changeable, that it can hardly be measured by the standards applied to general property. The true cash value of a railroad can probably be determined only by the result of its operation for a period of years, regardless of its cost.

In 1899 a determined effort was made in the legislature to change the method of taxation in the State, and also to increase the amount of taxes or license fees, but nothing definite in that direction was accomplished.

A statute was enacted creating a State tax commission for the purpose of investigating the existing system of taxation and reporting the result of such investigation to the legislature, with recommendations for the improvement of the system and the equalization of taxes throughout the State.

This commission is now actively engaged in carrying out its important work and giving special attention to the investigation of the subject of railroad taxation, with a view to determining whether or not the present system of license fees on gross earnings should be abolished and the ad valorem method, so called, adopted for the taxation of railroad property; or, if the present system should be retained, what method should be adopted to determine the percentage of gross earnings to be paid which will make the tax equal to the rate of taxation imposed on other property.

Governor Scofield, in his message to the legislature for 1899, made the following comments and recommendations as to the operation of the license system:

"I am convinced that, while the license system of taxing certain corporations now in force is the most practicable method yet evolved, it yet has elements of unfairness and inequality which might, partially at least, be eliminated. * * * Our present graded license system of taxing the railroad companies contains some glaring inconsistencies. We have under this system five classes of roads, the classification being based upon the earnings per mile. The first class pays 4 per cent upon its gross earnings. The second class is taxed 3½ per cent on its gross earnings. The fourth class pays \$5 per mile and 2½ per cent on all earnings over \$1,500 per mile up to \$2,000 per mile. The fifth class pays \$5 per mile only.

"The report of the railroad commissioner of the State, which will be laid before you, contains some figures which show the inequalities of this classification. For instance, the class of roads which pay 4 per cent of their gross earnings pay the

equivalent of a rate of forty-five one-hundredths of 1 per cent upon the cost of the road. The third class, which pays 3 per cent of their gross earnings, pays but twenty-eight one-hundredths of 1 per cent upon the cost. The fourth class pays but four and one-third one-hundredths of 1 per cent upon the cost, while the fifth class pays but one and eight-tenths one-hundredths of 1 per cent upon the cost.

"The commissioner's report shows that some of the roads which pay the trifling sum of \$5 per mile in taxes, and from which the aggregate sum received varies from \$60 upward, show in their own reports large earnings, and, in some cases, that the management of the roads have been able to pay large dividends.

"In view of these very noticeable inconsistencies I recommend that the classification be abolished entirely and that a uniform license fee upon the gross earnings be charged all roads doing business within the State, regardless of what their mileage or earnings may be. If the 4 per cent fee upon the gross earnings which the first-class roads now pay were charged all of the roads, the income of the State, based upon the returns for the past year, would be largely increased."

In personal conversation with Governor Scofield, who has apparently given the subject of taxation in Wisconsin very careful thought and study, he highly commended the license system as applied to the taxation of railroads, the tax being levied by the State for State purposes, stating that he regarded it as the best system yet devised for the taxation of such property; that, in his opinion, the railroads in Wisconsin paid more taxes according to property value than any other corporate property in the State; and that he was inclined to the opinion, from the investigation he had made, that under that system they were paying their full proportionate share of taxation, apparently having taken into consideration in reaching that conclusion the fact that real estate is grossly undervalued and that a vast amount of personal property escapes taxation under the local assessment system.

SLEEPING-CAR COMPANIES.

By an act passed in 1883 sleeping-car companies were required to pay an annual license fee of 2 per cent of their gross earnings made by the use of such cars between points within the State during the preceding calendar year.

In 1885 the statute was amended, increasing the amount to 4 per cent of the gross earnings, which continued to be the rate until the year 1899. The supreme court of Wisconsin construed the act to mean that under its provisions the companies were only required to return the gross earnings they derived from the transportation of passengers from one point to another wholly within the State, and if such were not the construction of the act it would be unconstitutional, as interfering and restricting interstate commerce. (*State v. Pullman Co.*, 64 Wis., 99.)

This decision was put to a practical use by some sleeping-car companies by selling to a passenger desiring transportation between two points within the State a ticket to some point beyond the State line. This increased mileage was of no benefit to the passenger, and the sale was not reported in the annual report of earnings.

The limited amount of earnings so returned and the comparatively small benefit derived by the State from such taxation is shown by the following table of the yield of sleeping-car company taxes in the years 1890 to 1898, inclusive:

1890	\$1,865.67	1895	\$503.80
1891	894.32	1896	2,031.14
1892	1,214.96	1897	904.75
1893	1,193.04	1898	852.69
1894	1,223.89		

In 1899 an act was passed which provides for an assessment of the actual value of the property of sleeping-car companies within the State.

By the provision of this act each sleeping-car company, wherever organized or incorporated, including companies owning dining, buffet, chair, parlor, and palace cars, is required to file with the State treasurer, during the month of July in each year, a report under oath for the year ending April 30 next preceding, containing the name of the company, location of principal office, nature and when organized, officers, chief officer or managing agent in Wisconsin, total amount of capital stock, number of shares, par value and market value, or, if no market value, the actual value of the shares, situation and value of its real estate in Wisconsin used in the business, location and value of all its real estate outside of Wisconsin used in the business, total length of lines of railroad over which the cars of such company were used in Wisconsin and elsewhere, total length of lines over which the cars of such company were used in Wisconsin, and such other facts or information as such company may deem material upon the question of the taxable value of its property within the State.

The State board of assessment, consisting of the secretary of State, State treasurer, and attorney-general, meets annually and proceeds to assess and levy a tax upon the property of such sleeping-car companies according to the following rules, after hearing such testimony and argument as such sleeping-car companies may offer:

First. It shall find the actual value in money of the entire amount of capital stock of each sleeping-car company used in its sleeping-car business, and from that amount it shall deduct the actual value of all real estate used by such company in its sleeping-car business without the State, and the remainder shall be taken and considered as the actual value of the capital stock of such company invested in its sleeping-car business.

Second. The amount so obtained is then divided by the total number of miles of railroad over which the cars of such sleeping-car company were used, to obtain the value per mile. The value per mile is then multiplied by the number of miles over which such cars were run within the State, and the result is taken and considered as the actual value of the property of such sleeping-car company within the State of Wisconsin subject to taxation and assessment.

The board thereupon assesses such value and levies a tax thereon for the use of the State at the average rate of taxation, State and local consolidated, of the State of Wisconsin, certifying the assessment, rate of levy, and the amount of the State tax to the State treasurer, who thereupon notifies such company of the same by registered letter. The sleeping-car company is then given 80 days after the mailing of such notice within which to pay such tax.

Upon neglect to so pay the tax, a suit may be commenced by the attorney-general against such company to collect the same, together with a penalty of 10 per cent of the total amount of such tax and costs of suit.

Sleeping-car property which is owned by railway companies, and the gross earnings of which are taxed as a part of the gross earnings of such railway companies, is exempt from taxation under the provisions of the foregoing act.

The result of the operation of this law in 1899 is shown by the following statements:

Items.	Wagner Palace Car Co.	Pullman Palace Car Co.
Actual value of entire amount of capital stock.....	\$14,000,000	\$15,299,000
Actual value of real estate used by such company in its business within the State	4,000,000	.....
Actual value of capital stock	10,000,000	15,299,000
Total miles of railroad over which the cars of the company were run.....	74,000	129,679
Value per mile.....	\$135, 135	\$117, 975
Number of miles within the State	1, 374. 8	1, 108
Actual value of property within this State subject to assessment and taxation	\$185, 783. 60	\$130, 127. 40
Average rate of taxation, State and local consolidated, in the State ..	\$0. 028152108	\$0. 028152108
Total amount of tax	\$5, 230. 20	\$3, 663. 86

FREIGHT-LINE COMPANIES AND EQUIPMENT COMPANIES.

They are required to make the same statement, and the value of their property is assessed by a similar process and at the same rate as sleeping-car companies.

The results for 1899 were as follows:

Equipment companies or freight lines, 1899.

Items.	Burton Stock Car Co.	Swift Refrigerator Transportation Co.	Kansas City Dressed Beef Line, Kansas City Fruit Express, Kansas City Tank Line.	Mather Humane Transportation Co.
Actual value of entire amount of capital stock	\$57,014.50	\$300,000.00	\$513,550.30	\$73,760.50
Actual value of real estate used by such company in its business within the State	50,000.00	.....	.....	.....
Actual value of capital stock	7,014.50	900,000.00	513,550.30	73,760.50

Equipment companies or freight lines, 1899—Continued.

	Burton Stock Car Co.	Swift Refrigerator Transportation Co.	Kansas City Dressed Beef Line, Kansas City Fruit Express, Kansas City Tank Line.	Mather Humane Transportation Co.
Total miles of railroad over which the cars of the company were run.....	26,515,623	180,000	49,984,250	190,200
Value per mile.....	\$0.00026	\$5.00	\$0.010284	\$0.3878
Number of miles within this State.....	7,004	8,270	277,119	5,501
Actual value of property within this State subject to assessment and taxation.....	\$1.82	\$16,350	\$2,849.89	\$2,138.29
Average rate of taxation, State and local consolidated, in the State.....	\$0.028152108	\$0.028152108	\$0.028152108	\$0.028152108
Total amount of tax.....	\$0.06	\$460.29	\$80.23	\$60.06

	Western Refrigerator Line.	Western Refrigerator Transit Co.	Cudahy Milwaukee Refrigerator Line.	The Cudahy Refrigerator Co.	Union Refrigerator Transit co.
Actual value of entire amount of capital stock.....	\$33,448.19	\$80,000.00	\$59,100.00	\$100,000.00	\$200,000.00
Actual value of real estate used by such company in its business within the State.....					
Actual value of capital stock.....	33,448.19	80,000.00	59,100.00	100,000.00	200,000.00
Total miles of railroad over which the cars of the company were run.....	195,362	195,362	6,096,481	21,275,211	195,362
Value per mile.....	\$0.1712	\$0.4094	\$0.009694	\$0.00457	\$1.0237
Number of miles within this State.....	5,653	5,658	275,036	23,468	5,704
Actual value of property within this State subject to assessment and taxation.....	\$967.80	\$2,814.34	\$2,666.20	\$107.25	\$5,839.18
Average rate of taxation, State and local consolidated, in the State.....	\$0.028152108	\$0.028152108	\$0.028152108	\$0.028152108	\$0.028152108
Total amount of tax.....	\$27.25	\$65.15	\$75.06	\$3.02	\$164.89

EXPRESS COMPANIES.

Prior to the year 1899 the only tax collected from express companies was that levied upon their tangible property, as upon the property of private persons, located within the various taxing districts of the State, their intangible property wholly escaping taxation; but in 1899 an act was passed providing for the assessment of the actual value of their property within the State.

By the provisions of this act any person, or joint stock company, partnership, association, or corporation, whether organized or incorporated, conveying to, from, or in the State money or property of any kind by express (not including railroad or steamship companies engaged in the ordinary transportation business) is deemed to be an express company.

Each express company is required to file during the month of July in each year, with the State treasurer, a statement in the form prescribed by him under oath, showing, with reference to the business of the fiscal year ending June 30 next preceding, the name of the company, its nature, location of principal office, when and where organized or incorporated, officers, authorized capital stock, capital stock issued, number of shares, their par and market value, their actual value; the situation, income, and value in detail of its real estate in Wisconsin; the total income and cash value of all its real estate situated outside the State, a full and correct inventory at the true cash value of its personal property, including moneys and credits within the State; the true cash value of all its personal property, including money and credits, outside the State; the whole length and the names of the railroad lines and water and stage routes over which it did business, and separately, in detail, the portion of such lines and routes within this State, and the portion of such routes over navigable waters of the United States within the State, and such other facts or information as may be material upon the question of the taxable value of its property within the State.

The State board of assessment, consisting of the secretary of state, State treasurer, and the attorney-general, thereupon meets upon the third Wednesday of August and proceeds to assess and levy the tax upon the property of such express company after notice to such company of the time of hearing upon such assessment.

After due hearing the board proceeds to determine the true value of its property according to the following rules:

The actual value in money of the entire amount of capital stock is found.

From the amount so obtained is deducted the actual value of all real estate situated outside the State and the actual value of personal property not used in the express business.

The remainder is taken to be the actual value of the capital stock of such company invested in its business. Such amount is divided by the total number of miles of railroad, stage, water, and other routes over which the company did business, and the value per mile so obtained is multiplied by the total number of miles of route within the State, exclusive of the number of miles of water route over navigable waters of the United States within the State. The result is declared to be the actual value of the property of such express company subject to taxation.

The board then proceeds to assess and levy a tax thereon for the use of the State, at the average rate of taxation, State and local, consolidated, of the State. The tax so assessed and levied is declared to be in lieu of all other taxation.

Failure to file report or to pay the tax is attended by a penalty of 10 per cent of the amount assessed for taxation, together with the costs of suit brought by the attorney-general to recover the amount of such tax.

The following reports will show the methods of the State board in the assessment of express companies under the law fixed by the legislature in 1899 and their results:

Express companies, 1899.

Items.	Adams Express Co.	American Express Co.-National Express Co.	Northern Pacific Express Co.	United States Express Co.	Western Express Co.
Actual value in money of entire amount of capital stock.	\$12,000,000.00	\$24,840,000.00	\$343,000.00	\$4,500,000.00	\$50,000.00
Value of real estate situated without this State.....	3,076,567.52	5,075,857.80	785.94	1,011,284.90	.....
Value of personal property not used in express business.	3,962,371.21	18,262,194.48	.....	981,150.00	.....
Total	7,038,938.73	23,338,052.28	785.94	1,992,434.00	.....
Actual value of capital stock..	4,901,061.27	1,501,947.72	842,264.06	2,507,565.10	50,000.00
Total miles of railroad, stage, water, and other routes over which the company did business.....	29,845	41,609.75	5,140	61,367.69	1,820.3
Value per mile	\$166.227	\$36.096	\$66.568	\$40.861	\$27.47
Number of miles over which the company did business in this State	263	3,154.67	87	2,045.14	331.3
Actual value of the property of the company subject to assessment and taxation in this State	\$43,717.70	\$113,871.13	\$5,793.18	\$33,567.08	\$10,474.31
Average rate of taxation, State and local, consolidated in this State.....	\$0.028152108	\$0.028152108	\$0.028152108	\$0.0028152108	\$0.028152108
Total amount of tax.....	\$1,230.75	\$3,205.71	\$163.09	\$2,352.59	\$294.87

TELEGRAPH COMPANIES.

Telegraph companies are required to file annually with the State treasurer a statement, under oath, showing the total number of miles of their telegraph line, and the number of miles of such line within the State, the number of wires employed on each division of such line, and the aggregate number of miles of single wire operated within the State.

Upon the filing of such report the State treasurer issues to each telegraph company a license, upon payment of the license fee for State purposes, which is as follows: For the first wire, \$1 per mile; for the second wire, 50 cents per mile; for the third wire, 25 cents per mile; for the fourth and each additional wire, 20 cents per mile.

The yield of the tax for the years 1890-1898 was as follows:

1890.....	\$7,775.77	1895.....	\$9,999.45
1891.....	8,691.16	1896.....	10,817.56
1892.....	9,325.58	1897.....	10,684.28
1893.....	9,657.62	1898.....	10,882.15
1894.....	9,985.71		

TELEPHONE COMPANIES.

Telephone companies annually make a sworn statement of their gross earnings for the fiscal year ending December 31, and file the same with the State treasurer, who thereupon issues to each telephone company an annual license, upon the payment of the license fee, as follows: If the amount of gross earnings be over \$100,000, 3 per cent of such gross earnings; if under \$100,000, 2½ per cent. A penalty of \$5,000, to be paid the State, together with forfeiture of rights and franchises, follows the neglect to obtain such license.

Such taxation is in lieu of all other taxation, and an additional license fee can not be imposed by a municipality. (*Wisconsin Telephone Company v. Oshkosh*, 62 Wis., 82.)

The yield of such taxes for the years 1890-1898 was as follows:

1890.....	\$4,691.48	1895.....	\$9,888.99
1891.....	5,076.43	1896.....	9,744.64
1892.....	5,520.48	1897.....	10,777.14
1893.....	11,705.71	1898.....	15,477.59
1894.....	9,716.29		

STREET-RAILWAY AND ELECTRIC LIGHT AND POWER COMPANIES.

These companies are required to pay annually to the treasurer of the city or village from which their franchise is derived a tax upon their gross earnings, as shown by a sworn statement filed with such treasurer.

The rate of taxation is graduated as follows:

1. Three per cent upon the first \$300,000 and 4 per cent upon all amounts of such receipts over \$300,000.

2. Those whose gross cash receipts are less than \$300,000 per annum, as follows: One and one-half per cent on the first \$250,000 or less, 2½ per cent on all amounts of such receipts over \$250,000. Provision is made for the apportionment of this license fee between two or more municipalities, based upon the number of miles of track or wire within each; also where the track extends beyond the limits of the principal municipality to a town or village, such municipality shall receive 3 portions of such fee to 1 in such town or village. The distinction in apportionment between electric companies and railroad companies is based on the theory that the former are distinctively local corporations, and that there is less reason for payment of their license fees into the general funds of the State.

Of the taxes so collected, the State receives 6 per cent, the county 3 per cent, and the municipalities 91 per cent.

Yield of taxes to State on street railways and electric-light companies, being 6 per cent of the whole:

1896.....	\$746.73
1897.....	697.17
1898.....	4,131.90

GAS AND WATER COMPANIES.

Reference has already been made to the manner in which the property of these companies is assessed. In addition, we quote the following from the report of the tax commission of 1898:

"After various unsuccessful attempts in some cities to properly tax some of the corporations of these classes, and after several decisions of the supreme court prescribing the legal method, a statute was adopted providing for the taxing of waterworks companies and gas plants.

"By this method all the land, pipes, appurtenances, and franchises are treated as personal property and assessed in the district of the principal office of the company, and the taxes are collected like other taxes on personal property; and where the property is in more than one municipality the law provides for the apportionment of the just amount to each.

"The statute referred to is based upon the rule expressed by the supreme court that although all of the property of such corporations, including the franchises, should be assessed and taxed, the different kinds of property making up the plant should not be segregated, but should be treated for the purposes of taxation as an entirety.

"The representatives of several companies of this class stated that they would prefer to be taxed like some of the other corporations, on the basis of gross earnings, and suggested that even if the percentage were so adjusted that the amount of taxation were somewhat increased over the amount paid under the present system they would prefer to bear it, in consideration of greater uniformity and their consequent ability to anticipate and prepare for the expense and fixed charges of their business.

"There would seem to be no serious difficulty in arriving at the fair value of this form of property, and we do not recommend any change."

These are local taxes, and the aggregate amount can not be given.

TRUST, ANNUITY, AND GUARANTY COMPANIES.

These companies pay to the State treasurer an annual license fee of \$300, and in addition thereto 2 per cent of their net annual income. The whole of such tax is received by the State, this is in lieu of all taxes except those upon real estate. The tax paid by loan and trust companies in 1898 was \$2,604.10.

BANKS.

No tax is assessed upon the capital of banks, but the stock of each stockholder is assessed to him at its value, as other taxable property, in the assessment district where such bank is located. The value of real estate owned by banks is not deducted from shares.

Upon demand of the assessor the names of the stockholders and the number of shares held by each are required to be furnished by each bank. But accumulated profits and surplus over and above the capital stock paid in are assessed for taxation to such bank.

The tax commission of 1898 says that a comparison of the assessed valuation of bank stock with the total par value, as shown by the official reports in 1897, disclosed the fact that the assessors' valuations ranged from nothing at all to over 200 per cent.

The par value of the stock in National, State, and private banks in the summer of 1897 was \$18,141,689.26. The surplus and undivided profits held by these banks amounted to \$6,073,324, making a total of \$24,215,013.26, while the total assessment of bank stock for the whole State was \$7,588,890, or 31 per cent.

Making certain corrections because of assessment of bank stock in one city under another head, it is made to appear that the assessed valuation of bank stock is 72 per cent of its par value, and 54 per cent of the sum obtained by adding the surplus and undivided profits to the par value. The commission says, however, that there is a great deal of bank stock in the State that pays very small dividends, if any, and is not salable at par.

Notwithstanding this, the tax commission says that there is no form of property in the State that pays a larger tax relatively than the banks, and they give the familiar reasons for this statement—that full reports being required of bank officers and the value of the capital stock being easily ascertained by assessors, shares are generally assessed at a larger proportion of their real value than any other form of property except, possibly, real estate.

The commission refers to the injustice done to banks in some cities by the failure of assessors to adopt a uniform method of determining the value of stock, an evil which it suggests might be remedied by a State board.

TITLE GUARANTY COMPANIES.

Corporations formed for the purpose of insuring or guarantying the title of real estate are required to pay to the State the same license fees required of fire insurance companies, and such fees are to be in lieu of all other taxes.

BOOM COMPANIES, ETC.

Persons or corporations owning or operating dams, booms, sluiceways, or other structures in any navigable stream within or forming part of the boundary of the State for the purpose of booming, driving, or otherwise handling logs and timber of any kind, having authority so to do under the laws of this State, are required

to pay license fees of 2 per cent of the gross earnings of the business. Where the property and improvements of such person or company necessary for the transaction of his or its business have been taxed by the town, city, or village where the same are located, then the amount of such taxes may be deducted from the license fee above mentioned.

PLANK AND TOLL ROADS.

Owners of plank and toll roads are required annually to pay to the State a license fee equal to 3 per cent of the gross earnings of such roads, the same to be in lieu of all other assessments or taxes. The tax paid by these roads in 1898 was \$683.59.

FIRE AND NAVIGATION INSURANCE COMPANIES.

Companies of these classes, except town, church, and mutual insurance companies in cities and villages, transacting business in Wisconsin are required to pay to the commissioner of insurance as a license fee "2 per cent of the amount of gross income, including cash, notes, receipts, or installment notes taken for premiums and assessments on premium notes received by such company during the preceding year in this State, as shown by the annual statement of its business required to be made by law."

They also pay for the benefit of organized fire departments in cities and villages where they are maintained 2 per cent of the premiums received in such municipalities, make certain contributions to the expense of maintaining fire patrols and fire departments in cities and villages under certain conditions, and pay various items of fees to the insurance commissioner.

While these exactions are not imposed by the exercise of the taxing power of the State, but under the police power of the State, they considerably add to the burdens of such companies, and should be mentioned in this connection. The amount of this 2 per cent tax in 1898 was \$87,029.61.

LIFE INSURANCE COMPANIES.

Under an act of 1899, life insurance companies, excepting fraternal insurance societies, organized under the laws of the State, not purely assessment companies, pay to the State treasurer an annual license fee of 1 per cent of their gross income, excepting therefrom the rents of real estate upon which such company has paid taxes assessed as upon other real estate similarly situated, and excepting income from interest on United States bonds.

Such insurance companies organized without the State pay to the State treasurer an annual license fee of 1 per cent of all premiums collected from residents of the State during the preceding calendar year. The entire premiums collected, including premium notes and dividends paid to the insured, are so taxed.

All other insurance companies except fraternal societies, including assessment companies, pay to the State treasurer an annual license of \$300.

Prior to 1899 life insurance companies paid an annual license fee of \$300, and domestic insurance companies paid in addition 2 per cent of their cash receipts for premiums. This tax was in lieu of all taxation except on real estate. Foreign assessment companies paid an annual license fee of \$25. Domestic assessment companies paid no tax. The amount of taxes from these companies in 1898, under the old law, was \$35,747.19.

CASUALTY COMPANIES.

Casualty companies pay to the commissioner of insurance an annual license fee of 2 per cent of their gross premiums, which in 1898 amounted to \$22,249.27.

SUMMARY.

The total income of the general fund of the State for 1898 was \$2,971,140.72. Of this, \$1,429,179.69 was received from license fees, as shown by the following table:

Licenses.

Railroads	\$1,247,857.08
Sleeping-car companies	852.69
Telegraph companies	10,882.15
Telephone companies	15,477.59
Street-railway companies and electric-light companies	4,131.90

Licenses—Continued.

Loan and trust companies	\$2, 604. 10
Log driving and boom companies	1, 769. 92
Plank-road companies	683. 59
Insurance companies	145, 420. 72
Total	1, 429, 179. 69

Of the balance of general fund receipts, amounting to \$1,541,961.08, \$1,149,300.70 was received by State levies on general property and from special charges and taxes upon civil actions, \$332,660.38 being received from charitable and penal institutions and from sundry and miscellaneous sources.

REPORT OF THE WISCONSIN STATE TAX COMMISSION.

Since the foregoing report of the Wisconsin tax system was prepared, we have received the first biennial report of the Wisconsin State tax commission, an able, conservative, and valuable contribution to the modern literature of taxation, containing some matter of special interest at this time.

The preliminary work of this commission in 1899 was largely devoted to the examination of the tax laws in the several States, the publications of leading economists and financiers, the reports of tax commissions in different States under various systems of taxation, and recommendations for improvement in universally unsatisfactory conditions.

During the year 1900 the commission limited the scope of its original work largely to ascertaining the actual and assessed values of the different kinds of taxable property of the State taxed under different systems, for the purpose of comparing the taxes paid by these several classes and ascertaining the relation of taxes paid under the general-property tax and under the license system in vogue in that State, or, in other words, of determining the proportionate burdens imposed upon different classes of property.

From a careful examination of the reports of sales of real estate and assessments of the same property filed each year by the registers of deeds of the several counties of the State with the secretary of State, and other data and information from various sources, the approximate actual value of the taxable real estate of Wisconsin, based upon a 5-year average of sales, was found by the commission to be \$1,192,867,499, and the total average assessed value for the corresponding 5 years was \$518,824,558, and from these two respective sums the average of assessed value was found to be 43.4 per cent of the aggregate actual value.

At the time of the compilation of real estate sales the commissioners also made an investigation for the purpose of comparison between agricultural property and interests represented by railroad and other quasi-public corporations. For this purpose an attempt to find the actual values of property based upon sales was made, although they point out the difficulty and complexity of the problem of making comparison of properties differing so widely in product.

In the compilation of data of farm properties they sought simply to find some basis for comparison. The method pursued was through inquiry among 6,000 representative farmers fairly distributed throughout the State. A series of questions was propounded calculated to discover: First, the ratio of expense to gross income of agriculture; second, what percentage of gross income and income from operation the farmer pays in taxes; third, what relation the assessment of personal property, comprising implements and live stock, bears to his total assessment, and, lastly, the opinions of farmers as to the ratio which the assessed value of their farm real estate bears to the real value of the property. From 1,124 replies, sufficiently clear and reliable to be used for the purpose, in which all but 5 counties of the State were represented, the value of the lands of these farmers was estimated to be \$5,507,036, and the assessment of the same property in 1899 was \$2,109,927, being an average ratio of assessment to actual value of 38 per cent. A smaller number, 954, representing 64 counties, made a statement of the gross earnings of their farms and the amount of taxes paid upon the assessments of 1899, showing gross earnings \$871,351 and taxes \$37,297, or about 4.2 per cent of gross receipts.

Six hundred and fifty-six farmers, representing 58 counties, gave their gross income as \$687,469, and income less expenses \$204,152, the ratio of gross expenses to gross income being 70.3 per cent. The taxes paid by these 656 farmers averaged 18 per cent of their income from operation or net income. Of the 592 farmers who reported their assessments on the value of land, implements, and live stock,

the average ratio of assessment to actual value was the same as in the case of land, 38 per cent, the ratio of assessment to actual value in case of implements being 23.7 per cent, and in case of live stock 45.2 per cent. Reduced to brief form these results are as follows:

	Per cent.
Ratio of assessed to true value of land	38
Ratio of assessed to actual value of implements	23.7
Ratio of assessed to true value of live stock	45.2
Percentage of gross earnings paid in taxes	4.2
Percentage of income from operation paid in taxes	18
Ratio which assessed value of farm implements bears to total assessment of farmer	3.46
Ratio which assessed value of live stock bears to real estate of farmers	17.4

While these returns are crude and uncertain as compared with the returns of manufacturers and kindred industries, the commission expressed the belief that even on so limited a scale they indicate in some degree the actual conditions.

After all is said, however, the comparison of this farm property upon this basis with that of manufacturing plants, railroads, and kindred business properties must be regarded as in a very great degree guesswork against comparative accuracy, although for popular use not devoid of substantial value.

A similar inquiry among manufacturers showed the average assessed value to be 37.2 per cent of the actual value in 1900. The results of inquiries concerning this class of properties were, however, admitted to be very meager and unsatisfactory.

The representatives of the railroad companies of the State who were invited to appear before the commission, in presenting their views of the relative burdens of taxation on different classes of property, presented statistics of data collected by them in 16 of the 70 counties, showing the average ratio of assessed to true value of real and personal property of all classes to be 35.5 per cent, or as they claimed about one-third.

A somewhat similar inquiry by the commission as to business and residence property showed the assessed valuation to be 57.5 per cent of the actual value, and that the business property reported upon pays taxes to the amount of 18 per cent of gross income and 24 per cent of net income.

PERSONAL PROPERTY.

The ratio of the assessed value of personal property in the State, exclusive of railroad property, to the assessed value of real and personal property was 19.62 per cent, based upon the assessors' returns for 1898. Referring to the personal property, especially that of an intangible character, which escapes the tax rolls, the commissioners say that in the practical administration of tax laws it is apparent that calculations must be confined to that actually finding a place upon the rolls. "Speculation as to how much escapes will not make up the deficiency, nor can it be contended that the evasion is ground for lessening the just burdens on property that can be reached." They come to the conclusion that the ratio of assessed to real value of personalty on the rolls is substantially the same as in the case of real estate, 35.5 per cent.

A like inquiry as to the value of merchants' stocks shows the assessed value to be 45.5 per cent of the actual values, although it is admitted that the actual values given are, to some extent at least, the mere opinions of merchants, and that the difference may be less than indicated.

These methods, based upon mere opinions, are estimates of owners, and render results of very doubtful value and reliability as a basis for taxation as compared with the values of classes of property obtained through more accurate and comprehensive methods based upon more certain principles and elements.

It is shown that the banking capital of the State is assessed at 77.7 per cent of the actual value of the paid-up stock, at 63.1 per cent of the actual value of the paid-up stock and surplus, and 58 per cent of the actual value of paid-up stock, surplus, and undivided profits combined.

The report also contains an interesting account of a laborious and painstaking effort to ascertain the value of the properties of quasi-public corporations of the State, for the purpose of comparing the burden of taxation thereon under the license system with that on property of other kinds under the general property tax, and of determining whether it is advisable to readjust the existing system, or change to the assessment of the property of corporations upon an ad valorem basis, with a view to taxing it upon an approximately equal basis with other property.

With this end in view, a hearing was given to the counsel and representatives of the railway companies operating within the State and an opportunity afforded for the presentation of their views of the questions involved, viz: Whether the present system of license fees on gross earnings should be abolished and railroad property valued and assessed by the ad valorem system or general property tax. If the ad valorem method is adopted, what mode should be prescribed for the ascertaining of the value of such property and the proportion it bears to the value of other taxable property in the State? If the license system is retained, what mode should be adopted to determine the percentage of gross earnings to be paid which would make the tax paid equal to the taxation imposed upon other property?

There was shown to be substantial agreement between counsel for the companies represented upon the following propositions:

1. That the license-fee system is certain, simple, inexpensive, self-executing, and affords a fairly reasonable method of determining the relative tax obligations of the different railway properties.

2. That the local assessment of railroad property by men unfamiliar with such property is expensive, impracticable if not impossible, and works satisfactorily neither to the public nor to the railway companies.

3. That in case the ad valorem basis is adopted for the taxation of railroad property, the valuation shall be made by a central authority.

4. That under the existing license-fee system the railroads are now paying their just and full share of taxes or more.

The commission early in its investigation reached the conclusion that the old method of local taxation of railroads should not be restored, and eliminated it from consideration. It then proceeded to consider the ad valorem system administered by a State board and the license or earnings system, and concluded that taxation by either method should be imposed upon the entire property of the corporation according to value or earning capacity, and that no division of the elements constituting the unit of value or ability to pay should be permitted.

In considering the ad valorem method, the fact was recognized that the "valuation of railroad property at full value and other kinds at one-half value or less, when the same rate of taxation is laid on both, is so grossly inequitable and unjust that the constant effort and inclination will be to bring the former down to the common level, or supposed equality."

It seems to be further assumed that the leveling process must, to a greater or less extent, depend upon the discretion of the assessing body, and that if complete and accurate statistics of the true value of all classes of property in the State were obtained and the board "comprised of able, experienced, and skillful members of approved integrity, holding a continued tenure of office," the valuation of such property might be held in proper relation to other classes of property and the valuation and taxation made with approximate justice and equity, thus clearly indicating the inherent difficulty and weakness of the ad-valorem system as applied to this class of property. This result, says the commission, would have the advantage of preventing fluctuation in the revenue in times of depression or prosperity, which is one of the objections urged against the earnings system.

Recognizing the obvious advantages of the earnings tax, the commission says it has been so long established in the State that a change should not be made unless a better substitute is shown.

The distinguishing defects in the earnings tax, such as fluctuation in earnings and taxes, its relation to expenditures, and the validity of such a tax on interstate earnings, are discussed with clearness and intelligence.

The commission industriously attempted to discover some reliable method for ascertaining the actual value of railroad property in the State, which was deemed essential to the just and adequate taxation of such property under the ad valorem system, or to determine the rates to be fixed upon gross earnings to make the tax proportional to the tax imposed upon other property.

It is declared that the argument of railroad counsel failed to point out any practical method for a reliable valuation. Several methods were suggested by railroad counsel, none of which were admitted to be even approximately correct, while one went so far as to contend that there is no criterion for the valuation of railroad property that can be absolutely relied upon.

The conclusion of all these arguments was that there is no mode of determining the value of railroad property which can be relied upon. It was contended that when terminals and facilities of great value at railroad centers, connections, contracts, and traffic arrangements with other railroads enter into the calculation, the value of through lines presented a problem so complex as to be incapable of solution by any method, investigation, research, or exercise of human judgment.

The commission, however, concluded that whatever the difficulties, it was not wise to delay an honest attempt to find the value of such properties by the best possible test. It expressed the belief that the distribution of the value of such property between the States according to mileage in each State is the only practical method and as nearly accurate as any that could be devised.

In the adoption of a method for determining the value of this class of property, the commission rejected as unduly expensive the employment of experts to determine the physical value of the railroads—a method employed by the Michigan tax commission during the past year with results of very questionable worth, even for the purpose of comparison in taxation. Two principal sources of evidence were obtainable, the first being the reports of railroads containing accounts of the cost of the roads and equipment, issues of stocks and funded debts, gross and net earnings, operating expenses, interest and dividends paid, etc.; the second being to take the market price of the capital stock and funded debt of each road for a certain period and find the value by the aggregate value of all the stocks and bonds.

The average market value of the stock and bonds was compiled from the best and most reliable sources obtainable for periods of 1, 3, and 5 years, and the value of railroad property in Wisconsin, determined by the mileage plan.

The market values ascertained by this method were as follows:

Five-year average.....	\$217, 995, 718
Three-year average.....	231, 350, 451
One-year average.....	252, 318, 776

Taking the aggregate value of all the taxable real and personal property of the State as ascertained by the methods hereinbefore set forth and the total taxes raised for the year 189" the tax rate upon that valuation, it was found, would have been 1.1545 per cent. For the purpose of comparison of the taxes paid by the owners of real and personal property with that which would fall on railroads on the ad valorem basis, the commission took the average market price of the capital stock and debt for the 5-year period. It was then shown that, extending this illustrative tax upon that basis, the amount of tax would be \$2,516,760.56. Based upon the 3-year average and the 1-year average, the tax would of course be correspondingly higher.

It was further shown that if, instead of using the average rate referred to, the aggregate value of real and personal property was added to the aggregate value of the railroads on the 5-year basis, and the amount of taxes raised from both classes in 1899, the general taxes and the license taxes, the rate would be 1.102, and the amount paid by the railroads at that rate would have been \$2,402,812.81.

The commission also took into consideration the fact that "a too radical change might affect the value of the roads and cause the rates charged for traffic to be increased." From these ingenious investigations and comparisons the commission concluded that it would not be wise to change the existing license-fee system until it was more thoroughly tested, after so fixing the rates that the tax on gross earnings would be placed upon a basis equitable in comparison with the tax on other property.

This general conclusion would appear to be much safer and sounder than the methods employed in the comparisons. In fact, these methods illustrate, as stated by the New Jersey commission, "how impracticable it is to compare two things which are essentially dissimilar; how difficult and unsatisfactory it is to make a correct and just comparison of two systems of taxation based upon dissimilar principles." Such comparisons are perhaps useful for general purposes, but obviously constitute an unsound basis for tax legislation. The principles upon which the respective methods are based must be the primary consideration, and the comparative valuation thus obtained secondary.

In pursuing these methods of comparison of the accurate maximum values of one class of property, including the elements, tangible and intangible, which go to make up earning capacity, with other classes of property based upon property estimate and conjecture, it is obvious that liberal allowance must be made through the judgment and discretion of those conducting the comparisons, and that numerous elements of doubt and uncertainty are likely to be determined in favor of classes coming under the general property tax. A reliable authority has stated, in substance, that the method of arriving at values by capitalizing earnings at a certain percentage (or by market value of bonds and stock) must be regarded as entirely distinct from the property or valuation method, and for all practical purposes amounts to a tax upon earnings.

The application to one class of property, peculiar and complex in character, of a method of valuation which includes not only tangible property values, but such

intangible elements as franchises, terminal connections, traffic arrangements, business management, etc., and to other classes the methods employed by the assessors for ascertaining values of real and personal property in general, can hardly be regarded by business and industrial interests as affording an approximately reliable basis of comparison or as calculated to deduce sound and logical conclusions. The soundness and justice of the conclusions reached necessarily depend very largely upon the good judgment of the commissioners.

Valuations were also placed upon the properties of street railways, telegraph companies, and telephone companies by somewhat similar methods for like purposes of comparison.

RECOMMENDATIONS OF THE COMMISSION.

In making recommendations the commissioners "have sought to be conservative, keeping in mind, while seeking remedies for the evils laid bare, that too radical an effort to bring relief might tend to neutralize the good which would follow upon an immediate equalization of the tax burden."

The conclusions of the commission may justly be regarded as more sound than the methods employed for comparison of property values and as reflecting great credit upon the judgment and discretion of the commission. They recommend as follows:

MAINTAIN LICENSE-FEE SYSTEM.

That the license-fee system of collecting taxes from certain corporations be maintained, at least until it be given a test under conditions that will make the returns received from it more nearly equal to what would be collected from the same properties on an ad valorem basis.

LICENSE FEE TO BE COLLECTED FROM RAILROADS.

That the annual license fee to be paid by the railroads in lieu of all other taxes shall be a percentage of the annual gross earnings graded from a minimum of 3 per cent to a maximum of 5½ per cent, the graduation and classification to be as follows:

Three per cent of the gross earnings of all railroads whose gross earnings do not exceed \$3,000 per mile; the rate thereafter to be increased from the minimum of 3 per cent by adding thereto one-tenth of 1 per cent for each \$100 of gross earnings per mile until the gross earnings per mile shall equal \$4,500 and the maximum rate of 5½ per cent is reached; and 5½ per cent of the gross earnings of all railroads whose gross earnings per mile are \$4,500 and over. Thus, railroads whose gross earnings are equal to \$3,000 per mile will pay 4 per cent; \$4,000 per mile, 5 per cent; \$4,500 per mile, or over, 5½ per cent.

The railroads in 1900 on the earnings of 1899 paid the sum of \$1,546,720.68 on gross earnings of \$39,487,408.87. The above classification on the per cent of the gross earnings if applied to the gross earnings of the railroads in 1899 will give a revenue of approximately \$2,150,000.

SHALL NOT BE A WAIVER.

That the payment of a license fee on the gross earnings reported to the State treasurer by the railroads, and the granting of a license to operate the railroad in the State shall not be a waiver of the right to recover such further sum as investigation may show ought to have been paid.

REASSESSMENT.

That in case the taxation of railroads under the license fee system shall be held invalid on grounds not affecting the justice or equity of the tax a State board shall be designated and empowered to reassess the amount of the license fee which should have been paid upon the property of the railroad corporations at the actual value, and to levy a tax thereon for the use of the State.

STREET RAILWAYS AND ELECTRIC LIGHTING AND POWER COMPANIES.

That the annual license fee charged the above-named companies shall be a percentage of the gross receipts ranging from a minimum of 3 per cent to a maximum of 5 per cent, graded and classified as follows: Three per cent of the annual gross receipts of all companies whose earnings per annum shall not exceed \$25,000;

and thereafter to be increased from the minimum rate of 3 per cent by adding thereto one-tenth of 1 per cent for each additional \$7,500 of gross receipts over \$25,000 until gross receipts of \$100,000 are reached, when the rate will be 4 per cent; and increased from 4 per cent by adding thereto one-tenth of 1 per cent for each additional \$10,000 of gross receipts over \$100,000 until annual gross receipts of \$200,000 are reached, when the rate will be 5 per cent; then 5 per cent on the gross receipts of such companies whose gross receipts per annum shall exceed \$200,000.

TELEPHONE COMPANIES.

That the annual license fee which shall be charged telephone companies shall be a percentage of the gross receipts, ranging from a minimum of 3 per cent to a maximum of 5 per cent, graded and classified as follows: Three per cent on the gross receipts of all telephone companies whose gross receipts per annum shall not exceed \$25,000; the rate thereafter to be increased from the minimum rate of 3 per cent by adding thereto one-tenth of 1 per cent for each additional \$7,500 of gross receipts over \$25,000 until gross receipts of \$100,000 are reached, when the rate will be 4 per cent; thereafter to be increased from 4 per cent by adding thereto one-tenth of 1 per cent for each additional \$10,000 of gross receipts over \$100,000 until \$200,000 of gross receipts are reached, when the rate will be 5 per cent; then 5 per cent on the gross receipts of such companies whose gross receipts per annum shall exceed \$200,000.

TELEGRAPH COMPANIES.

That telegraph companies operating in the State be taxed on the ad valorem basis, the assessment to be made by a State board the same as in the case of sleeping car, express, freight line, and equipment companies.

EXPRESS COMPANIES.

That Chapter III, laws 1899, be changed so as to more specifically define the property to be deducted in making the assessment of express companies. The companies have made the claim that the property "not used in the business of such express company" should be deducted before making the assessment of their property. It was contended in the hearings before the State board of assessment that a large amount of personal property, consisting of stocks, bonds, mortgages, and other securities constituting the capital of the companies was not used in the express business. While such property is not actually used in the transportation business of the companies, it gives strength and credit, which enable them to do a large amount of business. The State board of assessment being in doubt as to the right to include such property in the valuation of the express companies, have allowed such deduction in view of the indefinite provisions of the statute.

FOREIGN CORPORATIONS.

That the statutes prescribing the conditions upon which foreign corporations are permitted to transact business in this State be amended in important particulars to secure their better regulation, control, and taxation. Such corporations should at least be compelled to file their charters or articles of incorporation and pay the same fees as are required of domestic corporations. They should also make reports of the capital employed within the State, and such other information as may be demanded. A reasonable license fee should be imposed on such corporations for the privilege of exercising the corporate powers and franchises in carrying on their business within the State.

INHERITANCE OR SUCCESSION TAX.

That a change be made in chapter 355, laws of 1899, which provides for a tax on inheritances or transfers of personal property. This is generally commended as a just and wise measure, and reaches for taxation a large volume of intangible property which would otherwise escape. The act, however, has two provisions which exempt certain property that ought to pay the inheritance tax. The first is that part of section 11 which reads as follows:

"There shall be deducted from such valuation an amount equal to the fair valuation of all personal property over and above \$10,000 upon which the testator, intestate, grantor, vendor, bargainer, or donor has paid the previous year a personal property tax."

This provision should be stricken out. The other provision which should also be stricken out is the last clause of section 19, which reads as follows:

"In case of any transfer of any shares of the capital stock of any corporation which owns real estate, the proportionate market value of its real estate taxed as such shall be deducted from the appraised value of any such shares so transferred and taxed as herein provided."

The real estate of the corporation, the proportionate value of which is to be deducted from the appraised value of the capital stock, may be situated in this or other States, so that the clause as it now stands will result in the exemption of capital stock to a large extent from the payment of the inheritance tax, as nearly every corporation owns more or less real estate. The increasing volume of this species of intangible property now escaping ordinary taxation should at least be subject to the inheritance tax. Section 13 of the law conferring jurisdiction upon the county court to determine the cash value of the estate, without appointing appraisers, should be amended so as to provide for notice of the time and place of hearing, which is essential to the validity of the proceedings.

IOWA.

In this State considerable effort of a conservative character has been made during recent years to improve the crude and inadequate general property tax system adopted in an early day, before corporate property had assumed any considerable proportions. The progress of reform in the taxation of property in corporate and intangible forms and the adoption of more modern methods has, however, apparently been impeded by the ambiguous constitutional provision that "the property of all corporations for pecuniary profit shall be subject to taxation the same as that of individuals;" by the tenacity with which public sentiment of the State clings to the idea of taxing such forms in "the same manner, to the same extent, at the same rates, and for the same purposes" as the property of individuals, and the apparent reluctance to supplement the general property tax by the adoption of entirely separate and distinctive methods for the taxation of special classes of corporate property by uniform State assessments. Considerable progress has, however, been made since the report of the tax commission in 1893 by the revision of the tax code in 1897, and the good effects of changes already made will doubtless be conducive to still greater progress in that direction.

The report of the tax commission referred to is a contribution to the literature of taxation in American States lacking in positive force and virility. It was the avowed "aim of the commission, next to bringing about a readjustment of the burdens of taxation, to see that these burdens were not increased." It expresses the firm belief that the bill proposed by it, if placed upon the statute book, would accomplish both these reforms; that it would even "have a tendency actually to lessen the public burdens as to those who now pay taxes."

Thus prepared, "the measure is submitted for the critical consideration of the people who must furnish the revenues of the State and the counties, and to whom these revenues belong for disbursement." As an educational source regarding just, uniform, and progressive taxation, to the people who must "furnish the revenues," it falls short. The commission seems to follow rather than lead public sentiment.

Still it would hardly be charitable to conclude that the commissioners proceeded upon the assumption of the adequacy of the existing system of taxation in that State. Rather should it be inferred, from the fact that only a portion of the changes recommended were followed by the legislature in the revision of the tax code in 1897, that they sought what was then attainable in legislation rather than the framing of correct scientific methods and theories of taxation. Some deficiencies in the existing methods and in administration are mildly set forth, but no positive or radical changes in methods are recommended, the commissioners apparently confining themselves to the better enforcement of the prevailing general property tax and its adaptation to changing economical conditions.

They advert to the fact that corporations are multiplying out of all proportion to the increase of population; that statutory provisions for taxing corporations in general remain practically unchanged since the time when there were very few of them in the State, and are so unsatisfactory that assessors in many cases pay little or no attention to their listing; yet they confine themselves to the recommendation of a corporation organization tax and aim "to render the manner of listing and assessing corporations clear and unambiguous and so as to secure from them contributions to the public revenue proportioned in amount to those supplied by individuals."

No definite recommendations were made or opinions expressed upon the question of divorcement of the sources of the State and local revenues, any opinion for or against such a change being expressly withheld, the bill presented simply containing alternative provisions in that regard, resulting in the retention of the existing method.

The recommendations of the commission in respect to organization tax, corporation tax, inheritance tax, and other suggestions were followed in part only by the legislature in the revision of the code, although the laws were con-

siderably altered with respect to assessment of corporations generally. Considerable change was made in the listing and assessment of property and more stringent methods adopted, which are expected to greatly increase the valuation and discovery of property for taxation.

Little need be said with respect to the general system in vogue as applied to real and personal property in general. It is the crude general property tax by local assessment, through elective local officers, for local, county, and apportioned State taxes, mingled with the primitive equalization as between townships by county boards of review and among counties by a state board of equalization.

During the biennial period from July 1, 1897, to June 30, 1899, the State receipts from county levies were \$4,055,767.75; from corporations, viz, insurance, telephone, express, and telegraph, \$375,596.57; the remainder of State revenues being from officers' fees, collateral inheritances, and miscellaneous sources.

We will refer in detail to the provisions for the assessment and taxation of various classes of corporate property.

ASSESSMENT OF REAL AND PERSONAL PROPERTY.

The executive council, or State board of review, fix the rate of taxation for State revenues upon the valuation of taxable property within the State, the amount to be expended for general State purposes being fixed by the general assembly. The rates for ordinary county revenues, support of schools and other local purposes, are limited by statute. The amounts required within these limitations are levied by the board of supervisors in each county upon the assessed value of taxable property within the county. The exemptions of property are liberal, including as usual property for public and charitable purposes as well as property for family support and farms, young live stock, and teams, utensils, and other property essential to livelihood.

The board of supervisors constitutes the county board of review, and adjusts the assessments of the several townships, cities, and towns, and the State executive council acts as a State board of review for the adjustment of valuations of the several counties.

In the assessment laws it is especially provided that all property subject to taxation shall be valued at its actual value, meaning its value in the market in the ordinary course of trade, and assessed for taxation at 25 per cent of such actual value, the purpose of this unique method of assessment being to avoid the danger of excessive levies upon a basis of full valuation, there being a constitutional limitation upon the power to create municipal indebtedness.

The real and personal property of individuals and private corporations is taxable locally for both State and local purposes. Aside from the liberal statutory exemptions, it is designed to bring all kinds of property upon the rolls by uniform methods and rates, and to accomplish that object there appears to be considerable latitude in the construction of the term "double taxation," the evils of that injustice being apparently regarded as preferable to the escape of property from single taxation.

For the purposes of taxation, credits are expressly defined to include "every claim or demand due or to become due for money, labor, or other valuable thing; every annuity or sum of money receivable at stated periods and all money or property of any kind secured by deed, title, mortgage, bond, or otherwise, and all moneys of every kind, credits, and corporation shares or stock except as otherwise provided, notes, accounts, contracts, bills of exchange, judgments, choses in action, liens of any kind, and securities other than those of the United States."

It has been held that the taxation of a mortgage debt in the hands of a mortgagee and also of the property in the hands of the mortgagor does not constitute double taxation, and that, although the taxation of the property of a corporation to the corporation and the shares of its stock to the holders thereof may amount to double taxation, it is not unconstitutional.

The statute provides for a limited and conditional deduction of debts from the amount of money or credits listed by any person, being limited to the gross amount of all debts owing in good faith and not formed with a view to decreasing taxation, and it being specifically provided that no person shall be entitled to any deduction on account of any indebtedness contracted for the purchase of non-taxable property. Deductions for debts are made only from moneys and credits. The bill proposed by the tax commission omitted all provisions for deduction of indebtedness of any kind, from the amount of moneys and credits, but the legislature did not follow their plan in this respect.

LISTING.

An attempt is made to secure by law a fair and equitable listing of all the taxable property of individuals and corporations, the values, however, being fixed by the assessors. The local assessor is required to list and assess the property of each taxpayer with his assistance, the owner being required to list his property under oath subscribed by him and administered by the assessor, refusal to take which is declared to be a misdemeanor. The assessor is required to fix the value of property assessed, and at the time it is made, to notify the owner in writing of the valuation put upon his property, directing him to appear before the board of review and show why the assessment should be changed if he feels aggrieved.

In case any person refuses to list property the assessor assesses it according to the best information obtainable, and adds to the taxable valuation 100 per cent. Any person who knowingly makes a false statement in regard to his taxable property is declared guilty of perjury.

Each grain, ice, and coal dealer is assessable upon the average amount of capital used by him in conducting his business, estimated in manner provided.

Provision is made for the listing and assessment of stocks of merchandise by inventory at the average value of such stocks during the preceding year. This applies also to corporations engaged principally in mercantile business, such taxation being in lieu of any tax on corporate shares.

The property of manufacturers which enters into the combination or manufacture of products is listed and assessed in like manner with merchandise as to average value, the real estate, including machinery, being separately assessed. Corporations engaged in manufacturing are required to list their real estate, personal property, moneys, and credits in like manner as required of individuals, and when so listed and assessed the shares of stock of such corporations are exempt from taxation in the hands of their owners.

Personalty is listed and assessed each year, and real estate is listed and valued in each odd-numbered year, buildings erected thereon being assessed in any year.

Although Iowa is distinctively an agricultural State and the property upon the whole less complex in character than in some of the States reported upon, the statutes requiring the assessment of property at its full value seem to have been, under former methods at least, universally ignored. This condition led to the appointment in 1893 of the special revenue commission to examine the revenue laws and report necessary and desirable changes; the present tax code, enacted in 1897, following in many respects the recommendations of that commission. The investigation showed at that time that realty was variously assessed at from 17 per cent to 60 per cent of its true value, averaging 38 per cent; that personalty was listed at about 86 per cent, a sufficient amount of personalty escaping altogether to bring the latter figure down to 20 per cent. This commission, in the consideration of remedies for the injustice of this varied undervaluation of property, unanimously opposed the suggestion of a proportionate valuation, as a rule fraught with evil results and operating in practical operation against the man of small means. It is claimed that under the provisions of the new code conditions as to valuation of both real and personal property have improved, and that under the listing systems in force property is more fully and adequately valued for taxation. Whether this belief is the proverbial result of the "new broom," or whether the change will result in permanent improvement, can perhaps be hardly determined at this time.

MORTGAGES.

Encumbered real estate is assessed to the owner at its taxable value, and mortgages are assessed as personal property to the owners thereof at their taxable value. It has been held by the courts that this practice does not constitute double taxation.

This subject received special consideration by the tax commission, and the following is their report upon and discussion of the subject:

"The exemption of the mortgaged part of realty from the assessment of such realty to the holder thereof and listing the value of such mortgaged part to the holder of the security was among the first suggestions made to members of the commission. The discussions on the subject which have been extensively indulged in for many years past had, moreover, attracted their attention individually long before their appointment. Several of the States had enacted the principle into law, and one (California) had made it a part of the constitution. But the commission is unanimous in the opinion that to adopt the measure would be unwise and illogical, and, moreover, unsatisfactory to those urging the change, and damaging to the interests whose benefit is contemplated thereby. Under the existing

law all realty is assessed as such. The commission can conceive of nothing which will improve this essentially just mode of taxation. Realty can not be hidden, and its market value is not difficult of estimation. Your commission can not but think it unwise to withdraw any part of it from the tax list merely because such part secures an indebtedness. The commission is not unaware of the fact that the measure in question does not in terms contemplate withdrawing the property mortgaged from taxation and that it proposes that taxation shall be borne by the mortgagee of the property. So far as existing mortgages are concerned it amounts to the same thing. Where such mortgages are held in Iowa the law requires the securities to be listed for taxation, the same as other property, and taxes are paid thereon. In respect of obligations held in other States that are secured by such mortgages, they, of course, can not be reached for taxation by any enactment made subsequently to the execution of such obligations. Such legislation would be an impairment of the obligation of a contract.

"The effect, therefore, of adopting the measure proposed would, as to existing contracts, be simply to release mortgaged realty to the extent of the incumbrance from all taxation. In respect of contracts made after the adoption of such a measure, the commission is of the opinion that the fact that the mortgagees must pay the taxes on the mortgaged part of the realty would have the effect of compelling borrowers to pay a higher rate of interest, at least when obtaining money from beyond the borders of the State.

"The relief of the burdened holders of property is the ostensible object of the measure. This relief, if any, under existing contracts would be entirely at the expense of the public revenues. As to future contracts, it would be substantially neutralized by increased rates of interest.

"The man who loans money naturally prefers to pay his taxes where he resides and where he more directly receives the benefit of its payment and where he may have some voice in the matter of taxes imposed upon it. All other things being equal, he will select that field for investment which gives him that privilege, and which has in it the least element of uncertainty. It is sometimes claimed that he does not pay taxes at his home upon the investment. The commission knows of no State or Territory throughout the Republic the laws of which do not contemplate the taxation of the credits held by its people, and we have no right to assume that their laws are not complied with. Moreover, whether such securities are or are not taxed in other States, the commission thinks it as much as we can do to reach all assessable property of our own people without raising questions concerning the taxation of those in other States. It is not necessary to discuss the question as to the State to which the lender is under most obligation, that where he resides and has perhaps accumulated his money or that which temporarily affords him an investment. His course will not depend upon the determination of that question. He is the sole judge as to whether he shall send his money to this State or another, and the greater favorableness of the conditions will determine him. Those who to-day are furnishing our people the cheapest money on their farms have already largely inserted clauses in their mortgages requiring the borrower to pay any taxes that may be levied upon the obligations secured by the mortgages, and reserving the option, in the event of the assessment of such taxes, to declare the whole amount due and collectible at once.

"It is claimed by some that the conditions are such that our needs in this direction are principally supplied by citizens and corporations of our own State. This is not true. Our cheapest money comes largely from the insurance companies and savings banks of New England, and while our own loan and trust companies may be the owners, as appears of record, yet they are in fact held by Eastern investors or by Eastern trust companies to secure the debenture bonds issued by the local company. One Iowa company, in its recently published report, shows a larger amount in outstanding debenture bonds and mortgages than is embraced in the capital of all the banks in the city of Des Moines. The taxation of foreign mortgages would be the harvest of the local money lender by reason of advanced rates.

"Again, what special reason is there why the foreign holder of Iowa mortgages should be taxed and the farmer exempted more than the wholesale merchant in the East should be taxed for the amount due him from the local merchant, and a corresponding exemption made to such local merchant? The wholesale merchant may not receive interest on his investment, but he has its equivalent in the profits on its sales. If this rule were applied, how many local merchants would obtain a credit on their purchases that would allow them to carry their customers to the extent now possible? Against all deductions for indebtedness there are other reasons:

"1. The landowner, the man with stock, and the owner of fixed permanent property, which would include as well corporation stocks, would not have the opportunities enjoyed by the merchant, the broker, the dealer in grain or

stock, or the speculator or dealer in any of those commodities which are readily exchangeable, to increase or shift their indebtedness to meet the visit of the assessor. Merchants could order their supply of goods for six months or a year in advance, giving their notes without interest therefor, yet using due care that the goods should not be in stock nor in transit until after the date fixed for assessment.

"2. It would open the door to the creation of all manner of contingent if not fictitious indebtedness, until much of the property now upon the tax books would have taken wings in pursuit of the already elusive 'moneys and credits' of the capitalist and stock of the farm, which, year by year, is thus steadily declining in its average assessed value.

"3. Another reason is that the man doing business largely upon borrowed capital would, if allowed to deduct his indebtedness, have a decided advantage in the matter of taxation over his competitor doing business on his own capital. Thus the tendency would be to multiply indebtedness, to drive out of the State the capital even of the business man where the assessor could not find it, and cause him to do business upon his credit, backed, possibly, if necessary, by his untaxed investments in other States as collateral. If this is regarded as fanciful, it may be said that it is done to a very considerable extent by shrewd Eastern business men, and is made a matter of complaint by the tax authorities of other States.

"The commission caused inquiry to be made as to the working of the proposed measure where it has been enacted into law, and especially in the State of California, where, as stated before, it is a constitutional provision. The tenor of advices from that State is to the effect that borrowers pay the taxes on mortgages through enhanced rates of interest. Some of the letters say that both borrowers and lenders are satisfied with the status, the former because their assessments are reduced, the latter because their net returns from the investment are as good (after paying the taxes) as before the present system was adopted. Other States which have adopted the measure have considerably modified it, and one has abandoned it entirely. In most of these States the parties have directly or indirectly inserted a stipulation that the borrower shall pay the taxes. The State of Oregon has given the proposed measure a very thorough trial. In 1882 it was enacted into law in that State. At the next session of the legislature, however, an act was passed making valid all contracts by which the borrower agreed to pay the tax on the debt, even though the latter bore the maximum rate of interest allowed by law. This agreement is said to be always exacted; as may be well believed, and the lender paid no tax. Finally, after 10 years' of experience with the law, the legislature of Oregon, at the instance of the same interests which had procured its passage originally, has just repealed it, and adopted the plan recommended in this bill, of prohibiting any deduction whatever on account of indebtedness."

VALUATIONS.

The actual value of land in 1899	\$1, 204, 932, 766
The actual value of town lots in 1899	873, 520, 290
Actual value of all real estate	1, 578, 453, 056
Exemptions	12, 077, 738
Total	1, 566, 375, 318
Taxable value of real estate (25 per cent)	391, 618, 831
Actual value of personalty	361, 196, 017
Taxable value of personalty	90, 299, 004
Actual value of vehicles, 1899	5, 326, 332
Actual value of household goods, 1899	2, 418, 553
Actual value of moneys and credits	106, 682, 840
Actual value of corporation stocks	22, 132, 498
Actual value of merchandise	59, 940, 418
Actual value of other personalty	20, 404, 406
Personalty other than live stock	216, 905, 047
Actual value live stock	144, 290, 970
Actual value personalty	361, 196, 017
State tax, 1898	1, 788, 175. 62
Total State and local taxes	18, 807, 090. 98

BANKS.

Private banks or bankers are required to furnish to the local assessor a sworn statement of the amount of moneys, the actual value of credits, amount of deposits and bills payable, the actual value of bonds and stocks, and all other property pertaining to their business.

Their real estate is specially listed and valued for taxation the same as other real estate.

The aggregate actual value of moneys and credits, less the amounts of deposits and debts owing, and the aggregate actual value of bonds and stocks, except such as may be exempt or otherwise taxed in this State, and all other property pertaining to the business, is assessed locally at 25 per cent of its actual value.

Shares of stock of National banks are assessed to individual stockholders where the bank is located, the officers of such banks being required to furnish the assessor with a list of stockholders and the number of shares owned by each, and to list to each stockholder the total value of his shares.

Shares of stock of State and savings banks and loan and trust companies are assessed to such banks and companies and not to the individual stockholders. To aid the assessor in fixing the value of such shares, these various corporations are required to furnish him with a verified statement of property, similar to that required of private banks, together with surplus earnings, and the assessor, from such statement and such other information as he may obtain, fixes the value of the stock, taking into account the capital, surplus, and undivided earnings, the real estate being deducted and assessed separately, as other real estate.

The fact that stock in a National bank is assessed to the shareholder, while savings banks are taxed upon capital stock and the shares are not taxable to holders, does not render the tax on National-bank stock to the holders illegal, as in violation of the Federal statute, providing that the tax on such stock shall be no higher than that imposed on other moneyed capital, and no greater than on the other class of banks.

It has been held that the holder of stock in National banks may set-off against it indebtedness owing by him, based, according to the Iowa statute, on actual consideration. Whether the owner of shares of stock in a State bank can set-off debts against the tax on such stock, taxed directly to the bank, does not appear to be entirely clear.

This class of property is taxed, with local property in general, at local rates, and under the more strict provisions for obtaining a certain, uniform, full valuation of such property than in the case of property in general taxed locally, the burden of taxation would appear to be correspondingly greater.

SHARES OF CORPORATION STOCK.

The shares of stock in any corporation organized under the laws of the State for pecuniary profit, except as otherwise specially provided for, are assessable to the owners thereof at the place where its principal business is transacted, the assessment being on the value of such shares on the 1st day of January in each year. In such cases the amount of capital in real estate is deducted from the value of shares, such real estate being assessed as other real estate, and the property of such corporations, except real estate situate within the State, is not otherwise assessed. Verified annual statements are required to be furnished to the local assessor, showing authorized capital stock and number of shares thereof; number of shares issued, and par value of each; amount paid into the treasury on each share, and the total capital paid in; description and value of each tract of real estate; date, rate per cent, and amount of each dividend declared and amount of capital on which it was declared; gross and net earnings, respectively, during the year, and amount of surplus; amount of profit added to sinking fund; highest price of sales of stock between the 1st and 10th days of January of the current year; highest sales of stock during the preceding year, and average price of sales.

The assessor has the power to fix, arbitrarily, the value of such shares of stock upon the facts contained in the statements furnished or upon any information within his possession or that may come to him.

All such corporations are liable for the payment of taxes so assessed to shareholders, and may recover taxes paid from stockholders, having a lien therefor upon the stock and unpaid dividends enforceable by sale of the stock.

It is not very clear just what kinds of property are in practice assessed under these provisions. One officer says in regard to them, "It looks as if the legislature had provided a way to assess all the property it could think of and then threw in this section as a drag net to catch anything that might be found."

STOCK OF BUILDING AND LOAN ASSOCIATIONS.

Special provision is made for the assessment and taxation of this class of property, the shares of stock in such associations being assessed and taxed to the individual holders thereof at their place of residence. When such an association maintains a reserve, expense, or other fund, the amount thereof is assessed against the association as other personal property at its place of business.

Each association is required to make the same verified statement as other corporations, and in addition, must state the total amount of reserve or other funds, and the actual value of its shares of stock.

Each local association is also required to mail annually to the several county auditors of the State verified statements, showing the name and post-office address of every stockholder residing in their respective counties, together with the number and value of shares owned by each person.

The auditor of State is required to send to the various county auditors the name and post-office address of each stockholder of a foreign association residing in their respective counties, with the number and value of shares owned by each, as reported to him by such association in compliance with the law governing such association.

The county auditor in turn furnishes each local assessor with the name of each stockholder in his district and the number and value of shares owned by him, which are assessed and taxed with other property at local rates.

TELEGRAPH AND TELEPHONE COMPANIES.

Each telegraph and telephone company is required to furnish to the auditor of State an annual verified report showing:

1. The total number of miles owned, operated, or leased within the State.
2. The average number of poles per mile and the whole number within the State.
3. The total number of miles in each separate line and the number of separate wires thereon.
4. The whole number and value of stations and their value, including furniture.
5. The whole number of instruments on each line and the gross rental charges per instrument.
6. The gross receipts and operating expenses for the previous year on business originating and terminating in the State.
7. Other gross receipts and operating expenses.
8. The total capital stock.
9. The number of shares issued and outstanding and the par or face value of each.
10. The market value of such shares on January 1 preceding, and if they have no market value, then the actual value.
11. All real estate and other property subject to local taxation within the State.
12. The real estate and improvements thereon owned and taxed outside the State and the actual value thereof where located.
13. All mortgages upon its property, with dates and amounts thereof.
14. The total length of lines and the total length of lines outside the State.

Such statement is laid before the State executive council, which, if it deems it insufficient, may require such other or further statement as it may desire. A penalty of \$100 per day is imposed for failure to furnish the required statement.

The executive council is required to determine and fix the actual cash value of the property of such companies in the State from such statements and other information obtained, also taking into consideration the value of all property of such companies, including franchises and the use of the property in connection with lines outside the State, making such deduction as may be necessary on account of extra value of property outside the State as compared with the value of property within the State, including in its valuation property of every kind—real, personal, or mixed—and such property is not taxable in any other manner.

Telegraph lines owned and operated by any railway company exclusively for its business, reported under the law for the taxation of railway property, are exempted from the above tax.

It will be observed that the rules provided for the assessment of this class of property on property values are quite general in character, leaving the final valuation largely to the judgment and discretion of the assessing officers; the purpose being to subject this class of property at an ad valorem unit valuation to taxation equivalent to the taxes imposed upon property in general. It is an

attempt to adapt the general property tax to this class of property and secure a full valuation thereof.

The taxable value of this class of property in 1899 was \$1,028,845, and amount of taxes paid about \$35,000. This amount was paid under the law then in force, based upon unit valuation by the executive council, the rate being fixed by the State council "at the average rate" throughout the State, not including local taxes on real estate and special assessments, and was paid into the State treasury. Under the amended law now in force, as above set forth, the taxes on these companies will be greatly increased.

The executive council ascertains the value per mile of the property of each company by dividing the total value by the number of miles within the State, the result being deemed to be the actual value of property within the State, the taxable value being one-fourth of the actual value, as in case of other property.

Any company interested has a right to appear before the council and be heard on the question of valuation of its property for taxation.

The valuation of the property within the State is then apportioned among the counties in proportion to mileage; the respective amounts are then duly certified to county auditors, and in turn apportioned to local taxing districts and taxes collected and disposed of as other taxes on real estate.

It is specifically provided that such property "shall be taxable upon said assessment at the same rates, by the same officers and for the same purposes as the property of individuals" within the local taxing districts, and collected at the same time and manner as other taxes. Property not exclusively used in the business is taxable as other property, and the shares of capital stock are exempt from other taxation.

INSURANCE COMPANIES.

In the taxation of insurance companies Iowa has recently taken a distinct departure from the general property tax prevailing in the general system of taxation in that State, and may be said to have gone to the opposite extreme.

In the new taxation code, adopted in 1897, a schedule of discriminating or inferential taxes upon insurance companies, based upon gross premiums, was inaugurated. Statements of the business of all companies operating within the State are required, and taxes upon the gross premiums are paid into the State treasury at the time of the making of the statements. Under the original law these State taxes were in lieu of all other taxes, State and local, except on real estate and special assessments.

Companies organized in foreign countries doing business in Iowa are required to pay $3\frac{1}{4}$ per cent of the gross premiums received for insurance on property or lives of persons within the State. Companies organized in any State other than Iowa pay $2\frac{1}{4}$ per cent and the rate on companies organized within the State and on stipulated premium or assessment associations outside the State is 1 per cent. Upon filing receipts for the payment of taxes they are entitled to certificates of authority to do business within the State. No deduction on account of any indebtedness is allowed.

This law imposing differential taxes on insurance companies has attracted considerable attention throughout the country, and seems to have formed a precedent for the introduction of similar measures in the legislatures of other States.

By reason of the precedent established, rather than any excessiveness in these discriminations, the law was met with positive opposition on the part of foreign companies, and active steps have been taken to test its validity.

Soon after the enactment of the law a Swiss company, through the minister to this country, protested to the Secretary of State at Washington against the law, alleging that the law was in contravention of treaty stipulations guaranteeing to Swiss companies the privileges granted to domestic companies. The protest was submitted to the governor of Iowa, but the attorney-general of the State held in an opinion that the law did not violate any treaty agreement of the Federal Government, and the matter in this instance has proceeded no farther.

Taxes were paid under formal protest by foreign companies generally, and a test case brought in the courts, in which the validity of the discrimination was sustained by the local and supreme courts, it being held that the State was acting fully within its constitutional rights in placing a discriminating tax on foreign insurance companies.

Another company in 1899 sought to enjoin the State treasurer from collecting the tax under this law, and the constitutionality of the act was positively affirmed

in a decision by Judge Shiras in the case of *Manchester Fire Insurance Company et al. v. John Herriott*, treasurer (91 Fed. Rep., 711).

In this case it was declared that the burden was not a tax imposed upon the tangible property of companies, but, in the form of a tax imposed as a condition upon their right to continue in business in Iowa, was within the right and power of the State to impose.

It was held further that the State in the adoption of this law was not exercising its right to subject property or persons within the State to taxation, thereby becoming subject to the provisions of the State constitution requiring equality in the burdens imposed; but was exercising its right to prescribe the terms upon which foreign corporations might be allowed to do or continue business within the State, and that it was not for the courts to question the expediency or justice of the conditions imposed. This case, so far as we know, has not been appealed.

The expediency of the law, however, has been the subject of some controversy in the State. In his biennial report of 1899 the State treasurer, discussing this law, says:

"But granting that it is within the power of the State to discriminate in placing tax burdens upon corporations doing business within our borders, is it a wise policy for Iowa to pursue? Does it promote the best interests of the people? Such discriminations against foreign corporations I do not believe are beneficial. They inevitably engender retaliations against our State companies in other States that may seriously embarrass their operations and progress outside of Iowa, and they tend to produce a condition of things within our own borders that may work great detriment to our home companies. The insurance of business, property, or life, if it is a good thing, and no one nowadays doubts it, should be encouraged and promoted by the State by all proper means, and discriminations such as Iowa has inaugurated do not in my opinion promote the best interests either of our home companies or of the insuring public. Iowa should emulate the broader policy of New York and Massachusetts and treat all companies as nearly as may be alike.

"This present statute with its discrimination against foreign companies was passed for the purpose of obtaining increased revenues from such companies—not to 'make war' on them or to drive them out of the State, as generally charged by the Eastern press. As such, the act only passed the senate by 1 vote. There was no local ill-feeling against such companies. The home companies opposed the passage of the act as vigorously as the foreign companies. But while passed as a revenue measure, the additional taxes received are insignificant compared with the great harm that may come from such discrimination. I urge the restoration of the old uniform rate on United States and foreign companies or the assessment of the same rate on other State companies now imposed on foreign."

The constitutionality of this law taxing insurance companies was attacked from another standpoint, the clause providing that taxes paid thereunder "shall be in full of all taxes, State and local, against such corporations or associations, except taxes on real estate and special assessments;" and in a test case it was held by the supreme court that under the constitutional provision requiring that corporations shall be taxed "the same" as individuals the legislature could not prevent counties and cities of the State from listing their property and assessing them for taxation. The decision of the court followed the railroad cases decided during the sixties and seventies, and affected the taxation of telegraph, telephone, and express companies. The decision, it will be seen, renders it exceedingly difficult, if not impossible, under present constitutional limitations, to tax corporations in Iowa exclusively for State purposes according to modern methods of assessment in vogue in the more advanced States.

As a result of this decision, the legislature in 1900 passed new laws for the taxation of telegraph, telephone, and express companies, as set forth under those heads, providing for their assessment by the State tax board or board of review, and for the certification of their valuation to the local authorities, apportioning said valuation among the local taxing districts according to mileage, as in the case of railroads.

The decision referred to apparently bars exclusive State taxes on corporations. This case is of great importance as affecting the progress of corporate taxation in Iowa, and the separation of State and local taxes. While the expediency of the discriminating rates may be justly questioned, the method unquestionably contains sound and progressive features, the principal one being the substitution of a fixed and definite tax from which there is no escape, imposed by the State upon companies whose business extends throughout the State, for the antiquated method of assessing such companies through local authorities. The taxes paid under this law in 1898 and 1899 exceeded the taxes for the previous 2 years

under the former law by \$57,902; the amount of taxes during the last years being shown by the following table;

Class.	1898.	1899.
Iowa companies	\$15,639.18	\$17,892.48
Stipulated assessment associations	1,419.91	1,769.06
United States companies	112,213.72	119,207.05
Foreign companies	18,268.21	18,068.49
Grand total	147,541.02	156,927.07

Presumably to avoid the consequences of the aforesaid decision, at the 1900 session of the legislature the provisions of the insurance-tax law applying to companies organized within the State were amended, and it is now provided, with reference to domestic companies, that the shares of stock of every such corporation having capital stock shall be assessed in manner provided for the assessment of shares of corporate stock in general, but assessed to the owners thereof at the place where the principal business is transacted, upon the value of shares based upon sworn statements, the corporation being liable for the payment of the tax; and also that the corporation shall pay a tax upon gross premiums, as provided in the amended law, and that such shares of stock shall not be otherwise assessed.

The law further provides that all other domestic companies except corporations with capital stock, county mutuals, and fraternal beneficiary associations not organized for pecuniary profit, shall furnish the local assessors with detailed statements of their business and property, and value thereof, including surplus, guaranty, and reserve funds, and the assessors thereupon shall assess against each such company the value of all personal property, together with the actual value of each parcel of real estate in the assessment districts, all of which is to be assessed at the same rate and for the same purposes as the property of individuals, the taxable value being 25 per cent of the actual value.

Provision is made for the deduction of debts and liabilities of such companies from their moneys and credits.

The amended law further provides that every insurance company organized under the laws of Iowa, not including county mutuals and fraternal beneficiary associations not organized for pecuniary profit, shall pay annually to the State treasurer a sum equivalent to 1 per cent of the gross receipts from premiums, assessment fees, and promissory obligations required by insurance contracts received during the preceding year, after deducting the amounts actually paid for losses matured, endowment dividends to policy holders, and the increase in the amount of the reserve funds provided, whereupon the auditor of state issues the annual certificate.

RAILROADS.

In this State it is sought to bring the property of railway companies within the general property-tax system and apply thereto the general principle of equality of taxation for all property, taxing it upon the same basis as the property of individuals. Assessments are made on estimated property values, and there is no franchise tax or tax on receipts.

The assessment of all property of each railway company is made by the State executive council, except real estate not used in its operation and railway bridges across the Mississippi and Missouri rivers, and grain elevators, which are subject to assessment and taxation on the same basis as the property of individuals in the several counties where located.

For the purpose of such assessment, each corporation is required to furnish the council annual verified statements showing in detail—

First. The whole number of miles of railway owned, operated, or leased within and without the State.

Second. The whole number of miles within the State, showing the number of miles of track in each county.

Third. A detailed statement showing the amount of real estate owned or used in the operation thereof in each county within the State for all purposes, and the estimated value thereof, in such manner as may be required by the council.

Fourth. A complete statement of the cost and actual present value of all buildings owned within the State not otherwise assessed.

Fifth. The total number of ties per mile used on all tracks within the State.

Sixth. The weight of rails per yard in main line, double track, and sidetracks.

Seventh. The number of miles of telegraph lines within the State.

Eighth. The total number of engines and cars of all kinds in use on its line, and sleeping cars owned by it, and the number of each class within the State, each class to be valued separately.

Ninth. Any and all other movable property owned within the State.

Tenth. The gross earnings of the entire road and the gross earnings in the State.

Eleventh. The operating expenses of the entire road and the necessary expenses within the State.

Twelfth. The net earnings of the entire road and the net earnings within the State.

It is specifically provided that operating expenses reported shall not include any payments for interest or discount, or construction of new tracks and other permanent improvements, for new equipment except replacement, for reducing bonded or permanent debt, nor any other item not fairly or reasonably chargeable as such in railway accounts, it being apparently intended that net earnings shall be a factor in determining property values. It is provided that such property shall be valued at its actual value and assessments made upon the taxable value—that is, 25 per cent of actual value—of the entire railway within the State, including right of way, roadbed, bridges, culverts, rolling stock, depots, station grounds, shops, buildings, gravel beds, and all other property, real and personal, exclusively used in the operation of such road.

The council is commanded to take into consideration the gross earnings per mile for the previous year and any and all other matters necessary to enable it to make a just and equitable assessment of such property, and if a part of any railway is outside the State, then, in estimating the value of its rolling stock and movable property, the proportion which the business of that part within the State bears to the business without the State is taken into consideration.

The executive council, after determining the whole value, transmits to the county auditor of each county through and into which any railway may extend a statement showing the length of main track within the county and the assessed value per mile of the same, as fixed by a ratable distribution per mile of the assessed valuation of the whole property of the company.

The county board of supervisors thereupon causes such statement to be entered in its minute book, and enters therein an order stating the length of the main track, and the assessed value of each railway lying in each city, town, township, or lesser taxing district in the county through or into which said railway extends, as fixed by the council, which constitutes the taxable value thereof for taxing purposes, and the taxes when collected by the county treasurer are disposed of as other taxes.

"All such railway property shall be taxable upon said assessment at the same rate, by the same officers and for the same purposes as the property of individuals within such counties, cities, towns, townships, and lesser taxing districts."

Each railway company is also required to show in its annual statement the number of sleeping and dining cars not owned by it but used in operation in the State during each month of the year, the value of each car so used, and the number of miles each month said cars have been run on such road within the State and the total number of miles run within and without the State.

The council assesses for taxation the average number of cars so used each month, and the assessed value of said cars shall bear the same proportion to the entire value thereof that the monthly average number of miles such cars have run within the State bears to the monthly average within and without the State. Such valuation is required to be in the same ratio as that of property of individuals, and is added to the assessed value of the general property of the company. It will be observed that the assessed valuation is based on total car mileage and not upon varying passenger traffic.

This law does not specifically exempt shares of stock in railroad companies from taxation in the hands of owners residing within the State, but in practice such shares do not seem to be assessed to the individual owners.

The assessed valuation of 9,236 miles of railway in Iowa for the year 1899 was \$46,008,510, being an average assessed value of \$4,891 per mile of road. The assessed value being 25 per cent of the actual value as fixed by the assessing board, it follows that the full valuation so fixed for 1899 was \$184,034,040.

The total amount of taxes paid by the railways of the State in 1899 was \$1,424,134.04, making the rate on the actual value \$0.774 on each \$100.

The gross earnings for 1899 were \$49,549,679.77, the operating expenses \$34,028,678.63, making the net earnings \$15,521,001.14, the taxes paid being substantially 2.87 per cent of the gross earnings, and more than 9 per cent of the net earnings.

Capitalizing on the basis of net earnings at 6 per cent, as is sometimes done, to obtain a rough estimate of the actual value of such property, the value of Iowa roads would be \$259,449,862.

The total assessed value of sleeping-car lines taxed by the method above described in 1899 was \$183,153, these lines being taxed at local rates upon that aggregate valuation.

Formerly, from 1862 to 1872, Iowa taxed railroads on "gross earnings," levying a flat rate thereon. The legislature changed the plan adopting the present method of assessment at "actual value." This has apparently had a demoralizing effect and resulted in grave discriminations and injustice in the taxation of railroad property, and charges of favoritism and corruption are freely made against those in whom from time to time is vested the "discretionary power" to fix railroad valuations for taxation.

The present State treasurer in a pamphlet recently published vigorously sets forth the evils of the present system and the injustice resulting to both railways and the public.

He says in substance that there is neither sense nor system in the assessment of railroads in Iowa, "chaos" being the only "descriptive in Webster applicable;" that by reason of the "discretionary power" lodged in the executive council railroad assessments in Iowa have become a serious danger to the public welfare; that because of its perversion, corruption of the most serious character has crept into party politics; that railroads are compelled to take part in politics and seek to control the taxation machinery. He cites numerous instances of grievous discrimination in the assessment of railroads in favor of the great lines that are influential in politics. For instance, the Crooked Creek Railway is compelled by the executive council to pay on \$233 for every \$100 of gross earnings, while the Northwestern pays on only \$72. "In other words, the weaker road is assessed 3 times higher than the richest and most powerful trunk line in the State." Again, in actual taxes the Great Western has been compelled to pay \$21.50 for every \$100 of its net earnings, while its great competitor, the Northwestern, has been required to pay only \$3.40 of each \$100 of its net income.

Other glaring instances of favoritism and inequalities in railroad assessments are set forth, showing the utter lack of plan and uniform procedure in that regard. The treasurer declares the only remedy to be a definite rule fixed by legislation for assessing railroads from which there can be no deviation. "If the council is to have charge, its 'discretionary power' should be reduced to a minimum or abolished." The same yardstick should be applied to all roads.

The writer then says that the easiest method for securing equality of assessment is the flat rate or the fixed charge on earnings or income, or on the property of railroads.

"For obvious reasons the flat rate on gross earnings, business, or property can be most readily assessed. There is no trouble about deductions or debts, and it can not be evaded. Material objections can be made because this method ignores the expense account of roads or their varying earning capacities. But the certainty and uniformity of the taxable basis make this method decidedly preferable to the present Iowa practice. There would be no abuse of discretionary power—no favoritism under this method."

He also views with some favor the taxation of such corporations on the basis of the market value of stock and bonds, as in Connecticut, regarding it as an improvement upon the existing system.

He clearly sets forth the inherent weakness of a method that seeks to adapt the general property tax to this class of property, viz: The necessity of vesting in officials "discretionary power" with respect to adjustment of property valuation or rate of taxation in order to secure "equal" and "uniform" taxation, invariably resulting in actual practice in unequal taxation.

WATER AND GAS WORKS, ELECTRIC PLANTS, STREET RAILWAYS.

The real and personal property of these companies is listed and assessed in the assessment districts where the same is located. Where such property, except the capital stock, is situated partly within and partly without the limits of a city or town, such portions are assessed separately, the portion within the said city or town being assessed there and the other portion assessed in the districts where located. The actual value of capital stock over and above that of the property listed and taxed as above described is assessed and taxed to the owners thereof at the place where the principal business is located, as other shares of corporation stock hereinbefore referred to.

EXPRESS COMPANIES.

Up to 1900 the tangible property of these companies was assessed and taxed in like manner as other tangible property was assessed and taxed in the local districts where the same was located.

An additional tax was imposed upon the receipts of these companies, each company being required to deliver to the auditor of State annual verified statements showing the entire receipts for business done within the State, of each agent doing business in the State, including its proportion of gross receipts for business done in connection with other companies, such statement to contain an abstract of the amount received in each county and the total amount for all the counties, a penalty of \$100 for each day delay after a fixed date in rendering such accurate statement being imposed and such delinquent companies being prohibited from carrying on business until such statement is made. Each company was required to pay into the State treasury at the time of making such statement the sum of \$1 on each \$100 of such receipts. The yield of this special State tax was as follows:

Year.	Receipts.	Tax.
1898	\$392,579.84	\$3,925.80
1899	412,668.91	8,253.91

A new method for the assessment and taxation of express companies was enacted by the legislature of the State in April, 1900, and is now in force, although no results are as yet obtainable. Each company is now required to file with the State auditor an annual verified statement showing—

First. The name and character of the company.

Second. The principal place of business, locality of principal office, and names and address of principal officers.

Third. The total capital stock (a) authorized; (b) issued.

Fourth. The number of shares of stock issued and outstanding.

Fifth. The market value of shares on January 1 preceding, and if no market value, then the actual value, and in case no shares of stock have been issued the market or actual value of the capital thereof.

Sixth. The real estate and personal property owned and subject to local taxation within the State, and location and actual value thereof in the county, township, or district where the same is assessed for local taxation.

Seventh. The specific real estate, with improvements thereon, and all bonds, mortgages, and other personal property owned and situated outside the State and used exclusively outside the conduct of the business, with a specific description of all bonds, mortgages, and other personal property and the cash value thereof, the purposes for which used and where kept, and each piece of real estate, where located, the purposes for which used, and actual value thereof in the locality where situated.

Eighth. All mortgages upon the whole or any part of its property, with dates and amounts thereof.

Ninth. Total length of lines or routes over which it transports; the total length of such lines outside the State; the length within each of the counties, townships, and assessment districts in the State.

Also to make such further statement as the auditor may require. Such statement and other information is placed before the members of the executive council, who value and assess the property from such statements and such other information as they may obtain, being empowered to bring before them the agents or officers of such company, with such books, papers, or statements as they may require, and compel the attendance of witnesses.

Any company may, upon written application, appear before such council and be heard in the matter of valuation of its property for taxation.

The executive council ascertains the actual value of the entire property owned by such company, taking the aggregate market value of its shares of stock, and in case the property is encumbered by mortgage, adding to the market value of stock or capital the market or cash value of such mortgages. The council then proceeds to determine the value of the property within the State by deducting proportionate values of property without the State, and from the entire actual value of property within the State so ascertained deducts the actual value of real estate and of personalty not used exclusively in the conduct of business within the State and which is subject to local taxation.

The value per mile is then determined by dividing the whole value as above obtained by the number of miles within the State. One-fourth of the actual value thus determined is the assessed or taxable value, in the same ratio as the property of individuals.

This assessed valuation is apportioned among the several counties in proportion to the mileage and certified to the county auditors. This is in turn apportioned to and taxes collected by the various local taxing districts "at the same rates, by the same officers, and for the same purposes as the property of individuals within such counties, townships, or assessment districts," and the property so included and the shares of stock are not otherwise taxed.

COLLATERAL INHERITANCE TAX.

All property of every kind within the jurisdiction of the State, passing by will or the statutes of inheritance of any State, or by deed, grant, sale, or gift made or intended to take effect after the death of the grantor or donor, to any person in trust or otherwise, other than the father, mother, husband, wife, or lineal descendants of a decedent, or charitable, educational, or religious societies within the State, is subjected to a tax of 5 per cent of its value in excess of \$1,000 after payment of debts. This tax is for the use of the State.

Yield of the tax.

1898.....	\$22,650.75
1899.....	28,264.90

TEXAS.

The distinguishing features of the taxation system in this comparatively new State are the general property tax applied to the property of individuals and corporations, the general law providing for an ad valorem tax on all real and personal property in the State; a poll tax, an occupation tax, and special taxes on gross receipts of certain classes of corporations.

The constitution of this State provides that taxation shall be equal and uniform. All property in the State except that which is exempt, whether owned by natural persons or corporations, shall be taxed in proportion to its value, to be ascertained as provided by law; the legislature may impose a poll tax, occupation taxes both upon natural persons and corporations, and may tax incomes. Limitations are by law placed upon the amounts that can be levied for State and various local purposes.

The legislature levies the tax for general State and school purposes, the commissioners' court of each county levies the county tax, and the city or town council that for cities and towns.

The assessment of all taxable property is made by elective county assessors required to seek out the owners of taxable property in their respective counties and obtain lists of the taxable property, the taxpayer being required to sign an affidavit that he has rendered a complete, full, and true list of all his property subject to taxation, but not to make oath to its value. The valuation, therefore, is in practice fixed by the assessors, with the usual results that property, instead of being valued as required by law, at its "full and true value," is unequally valued and undervalued. There is no systematic plan in use for the valuation and equalization of property for taxation, and in this respect "inequality is the rule and equality and uniformity the exception. The wealthy and influential property owner pays the least in proportion to what he possesses, and the small holder of property pays the most."

The tendency there as elsewhere is for assessors and taxpayers to connive in various ways to secure assessments at a portion of the true value of property, in order that the local district may avoid payment of a just proportion of the State tax.

Common control or supervision of State taxation is impossible under the present constitution, which commits to the commissioners' courts of the respective counties the supervision of values for taxation. There being no central or supervisory power for the enforcement of uniform valuations, the result is a distinct valuation of the same classes of property in each county in the State and inevitable inequality and undervaluation.

REAL ESTATE.

Under the system that has grown up under the present constitution, adopted when nearly all property consisted of land, that class of property is still the principal object of taxation and is said to bear an unjust proportion of tax burdens. Aside from the great inequalities in the taxation of land in local districts, it is shown that a much larger proportion of its total value is assessed for taxation for State and local purposes than in the case of personal property.

A comparison is made by the tax commission of 1899 in its distinguished report, illustrating this discrimination according to the census of 1890. The value of real estate in Texas was then \$1,220,417,771, and that of personal property \$885,153,995, a total of \$2,105,576,776. The taxable value of land assessed for that year was \$378,752,713, to which is added the value of town lots, \$145,524,497, to give the total taxable value, \$524,277,210.

The assessed value of all other property in that year, including railroads, was \$257,834,673, or a total assessed value of all property of \$782,111,883, against the real valuation as shown.

This leads the commission to say that "Land has borne and is bearing the burden of taxation in Texas, as it probably is throughout the country. It bears about double as much in this State on the dollar of its real value as personal

property." And again: "But as all prosperity depends, primarily, on the successful cultivation of the soil and the harvesting of its productions, it ought to be the purpose to relieve it from a greater tax burden than that which other property, equally or more productive, bears. With this end in view, we have formulated provisions which it is believed will compel other property in the State to contribute its fair proportion of taxes. If light taxes be conducive to the acquirement of any particular kind of property, then Texas, above all other things, should by this policy encourage every citizen to own a home. The ownership of a home gives stability and permanency to our citizenship; encourages a love and pride of State and country; is a bulwark of safety and protection to our institutions and to all the people, and the surest and safest way to lasting prosperity."

PERSONAL PROPERTY.

The system of taxation, framed with a view to making land the principal source of revenue, seems to be, under the conditions that have developed, especially conducive to inadequate taxation of personal property. The tax commission of 1899, in the discussion of this subject, contrasts the energy with which the Federal revenue laws are enforced by the revenue collectors, and in the courts when need be, with the universal laxity in the enforcement of State revenue laws in Texas, describing the method in vogue in that State as follows: "In our State the assessment and collection of the revenue is confided to officers who are chosen every 2 years, and the owner of personal property is not always pressed to know if he has any he has not listed. He signs the affidavit in a perfunctory manner and that ends the inquiry. The law taxes the property that has been sent beyond the State or county for the evasion of taxation, but such property is rarely reached. The man with thousands of dollars in the bank sends his clerk to render his property and tells him to render \$5,000 in money when he may have 50 and probably 100,000. Or maybe he will ask for a draft on New York for his deposit with the bank a few days before the 1st of January. This he will put into his pocket and keep there until January 1 has passed, and thus this particular property, though subject to taxation under the law, is not listed."

It is shown that the tax levied against personal property in 1898 was only 24.89 per cent of the ad valorem State tax assessed for general revenue and school purposes, and including railroad, telegraph, telephone, and street railroads was only 82 per cent, or less than one-third the whole amount, and that real estate, including in the term "acres and town lots," paid 68 per cent. "It is an admitted fact," the commission says, "that money at interest, stock, mortgages, as well as other forms of personal property, escape taxation in this State to an extent that is alarming."

The commission urges that more stringent laws be enacted and energetically enforced compelling such property to yield to taxation, and says that "if a time should come when it is admitted that this can not be done, the State should evolve another system, and look in another direction for revenue for the carrying on of the machinery of the State government." As indicating the low tax rates in Texas, even under present conditions, we note the suggestion of the commission that if equality in values and full rendition of property for taxation could be obtained, the tax rate for State purposes would be lowered, even under the present system, to such a sum as to be almost unnoticeable. That if all property were to respond to its full value, a tax rate of 2 cents on the \$100 would be ample for all the needs of the State for general State and school purposes.

Money at interest and other credits over and above the amount which a taxpayer pays interest for, and all other debts due over and above his own indebtedness, are taxable.

The tax commission recommended to the legislature the omission of this right of deduction on the ground that it is a convenient loophole for escape from payment of just taxes, operates unfairly against those who have no credits from which to deduct their debts, the condition of most taxpayers, and is the "unfair-est provision in our tax laws."

To the money lender it is said to amount almost to exemption from taxation. The commission says that the amount of real estate and chattel mortgages in the State will probably reach \$250,000,000, and the amount of credits rendered for taxation will not exceed 6 per cent of that amount, being in 1898 \$18,818,920.

MORTGAGES.

The taxation of credits, and especially those secured by real-estate mortgages in Texas as in other States, is a subject of commanding interest and importance.

Under the laws of Texas, credits in whatever form are subject to taxation as other property in general, but no special provision is made by law for the

recovery and rendition for taxation of notes secured by mortgage, the assessment of such property depending upon the independent action of each local assessor. Consequently very few credits of this character are reached. The amount of credits rendered for taxation in 1898 was \$18,818,920 and in 1900 \$16,103,802. What portion of these respective amounts represented real-estate mortgages can not be given, but it is probably small. In 1890 real-estate mortgages in force in the State amounted to \$93,864,178, and the amount has undoubtedly greatly increased since that time.

The tax commission devised a special method for the rendition and assessment of this class of securities, based upon the public records of such securities, and making it unlawful for persons loaning money on such security to require the person borrowing to pay the tax thereon, such requirement to be usury and subject to the usury laws of the State. The commission, reviewing the methods for taxation of mortgages in other States and the arguments for and against such taxation, advocates the taxation of such securities in Texas the same as other property.

POLL TAX.

A poll tax of \$1.50 is imposed by the State upon every male citizen between the ages of 21 and 60 years, \$1 of which goes to the available school fund and 50 cents to the general revenue of the State. The collection of this tax seems to be somewhat difficult, and a considerable proportion of the assessed poll tax is not paid. In 1898 the poll tax assessed was \$773,487.24, and the amount actually collected was \$520,753.18.

TAX ON OCCUPATIONS.

The tax on occupations, or privilege tax, is a distinctive and apparently popular feature in the Texas system of taxation, and although the stringent laws provided in regard to it are imperfectly enforced, about one-third of the State's revenue is derived from this source. It is a kind of indirect tax upon the people of the State for the purposes of revenue, regulation of business, and promotion of the public welfare, and is quite generally imposed upon occupations and business.

The law provides that there shall be levied on and collected from every person, firm, company, or association of persons, an annual tax on every occupation or separate establishment as shown by the following list:

Table of occupations taxed.

Series.	Occupation.	Specifications.	Tax.	Amount paid year ending Apr. 30, 1900.
1	Alley, nine or ten pin	Or other alley or like device.....	\$100.00	\$5,400.00
2	Auctioneers .....	.....	10.00	540.00
3	Bankers or brokers.....	Or dealers in exchange, stocks, bonds, warrants, etc.	50.00	2,322.50
4	Baseball park	In city of 5,000 inhabitants or more.....	25.00	.....
5	Beer dealer.....	Selling malt liquor exclusively.....	50.00	\$7,400.00
6	Billiard, pool, or other table.....	Each table.....	20.00	11,200.00
7	Cigarette dealer.....	In addition to any other tax.....	10.00	\$,790.00
8	Circus	Admission fee, including reserved seat, \$1.	250.00	250.00
9	do.....	Admission fee, including reserved seat, 75 cents.	200.00	600.00
10	do.....	Admission fee, including reserved seat, 50 cents.	100.00	700.00
11	Cockpit.....	.....	50.00	\$00.00
12	Commission	Selling on.....	10.00	2,390.00
13	do.....	Selling on samples in city of over 10,000 inhabitants.	50.00	.....
14	do.....	Selling on samples in city of 10,000 inhabitants or less.	25.00	25.00
15	Concert.....	Each performance	2.00	1,564.00
16	Cotton, wool, or hide buyer.....	.....	10.00	2,830.00
17	Cotton factor, broker, or commission merchant.	In city of 10,000 inhabitants or more.....	35.00	1,830.00
18	do.....	In city of less than 10,000 inhabitants	18.00	180.00
19	Cotton-seed products.....	Wholesale dealer	25.00	150.00
20	Dentist .....	.....	5.00	2,015.00
21	Electric-light company	In city of 10,000 inhabitants or more.....	35.00	490.00
22	do.....	In city of less than 10,000 inhabitants	20.00	1,140.00
23	Exhibition, acrobatic feats, menagerie, wax works, museum, or side show.	Each performance or exhibition.....	10.00	150.00

Table of occupations taxed—Continued.

Series.	Occupation.	Specifications.	Tax.	Amount paid year ending Apr. 30, 1900.
24	Exhibition by vender of medicine, belts, or other articles.	.....	\$50.00	\$100.00
25	Exhibition by sleight of hand or legerdemain.	Each performance	25.00	.....
26	Exhibition, stereoscopic views.	Panorama or view shows of pictures, statuary, or other works of art through stereoscopic or magnifying lenses.	10.00	230.00
27	Exhibition, wax works, menagerie or exhibition of any kind.	Each day	10.00	430.00
28	Fights between animals....	Each performance.....	500.00	.....
29	Flying jenny or hobby-horses or like device.	State tax payable in each county.....	15.00	660.00
30	Fortune teller, clairvoyant, or mesmerist.	do.....	10.00	370.00
31	Gas company.....	In city of 10,000 inhabitants or more.....	35.00	525.00
32	do.....	In city of less than 10,000 inhabitants.....	21.00	90.00
33	Grain elevator.....	Capacity of over 100,000 bushels.....	50.00	200.00
34	do.....	Capacity from 50,000 to 100,000 bushels.....	25.00	50.00
35	Hacks, wagons, buggies, etc.	Each let for hire not connected with livery stable.	2.00	1,038.00
36	Ice dealer.....	In city of 20,000 inhabitants or more.....	50.00	150.00
37	do.....	In city of 10,000 and less than 20,000 inhabitants.	30.00	.....
38	do.....	In city of 5,000 and less than 10,000 inhabitants.	20.00	60.00
39	do.....	In city less than 5,000 inhabitants.....	10.00	120.00
40	Insurance agent, general adjuster or agent.	.....	50.00	2,750.00
41	Insurance agent, local.....	.....	5.00	3,325.00
42	Insurance agent, industrial.	.....	2.00	16.00
43	Land agent.....	If not attorneys.....	5.00	2,100.00
44	Laundry, steam.....	.....	10.00	550.00
45	Lawyer or conveyancer.....	.....	5.00	10,020.00
46	Lightning rods, dealers in.	.....	36.00	.....
47	Lightning rods, canvassers for.	.....	100.00	.....
48	Liquor dealer, retail.....	Selling 1 gallon or less.....	300.00	573,900.00
49	Liquor dealer, wholesale.....	Selling 1 gallon or over.....	300.00	12,900.00
50	Liquor dealer in local option district.	Selling 1 quart or less on prescription of regular practicing physician.	200.00	1,600.00
51	Livery or feed stable.....	Each stall and each vehicle.....	.30	2,667.90
52	Loan agent.....	From every person, firm, or association of persons loaning money as agent or agents of any corporation, firm, or association in this State or out of it an annual tax of \$150 for the State for the principal office, and county tax of \$15 from each agent for each county in which he may do business, and no additional occupation tax shall be levied by any county, city, or town in this State.	150.00	1,200.00
53	Medical specialist, oculist, surgeon, or physician.	Traveling.....	50.00	400.00
54	Medicine, patent or other .. Merchants:	Traveling vendor.....	100.00	300.00
55	First-class.....	Purchasing \$750,000 or over annually.....	300.00	960.00
56	Second-class.....	Purchasing \$500,000 and less than \$750,000 annually.	250.00	1,500.00
57	Third-class.....	Purchasing \$250,000 and less than \$500,000 annually.	200.00	4,200.00
58	Fourth-class.....	Purchasing \$150,000 and less than \$250,000 annually.	150.00	4,050.00
59	Fifth-class.....	Purchasing \$50,000 and less than \$150,000 annually.	125.00	13,375.00
60	Sixth-class.....	Purchasing \$25,000 and less than \$50,000 annually.	60.00	16,740.00
61	Seventh-class.....	Purchasing \$15,000 and less than \$25,000 annually.	25.00	14,700.00
62	Eighth-class.....	Purchasing \$10,000 and less than \$15,000 annually.	20.00	12,630.00
63	Ninth-class.....	Purchasing \$5,000 and less than \$10,000 annually.	12.00	19,980.00
64	Tenth-class.....	Purchasing \$2,000 and less than \$5,000 annually.	6.00	21,068.00
65	Eleventh-class.....	Purchasing less than \$3,000 annually.....	8.00	34,530.00
66	Selling bankrupt stocks, etc.	For the first month.....	100.00	.....

Table of occupations taxed—Continued.

Series.	Occupation.	Specifications.	Tax.	Amount paid year ending Apr. 30, 1900.
67	Merchants—Continued. Selling bankrupt stocks, etc.	After first month for each month.....	\$20.00	.....
68	do.....	If business is to continue 6 months, for each month, in addition to the \$100 for the first month.	10.00	.....
69	Pawnbroker.....		150.00	\$4,800.00
70	Peddlers: Foot.....	State tax, payable in each county.....	5.00	1,890.00
71	1 horse or 1 pair of oxen.....	do.....	7.50	1,642.50
72	2 horses or 2 pair of oxen.....	do.....	10.00	8,150.00
73	Boat, sail or other.....	do.....	10.00	10.00
74	Clocks, agricultural implements, stoves, ranges, vehicles, washing machines, and churns.....	do.....	250.00	.....
75	Phonograph, electric battery, graphophone, kine-scope, cinematograph, etc.....		25.00	275.00
76	Photograph, or other such gallery.....		10.00	8,180.00
77	Pool seller.....	For each day pools are sold.....	5.00	1,225.00
78	Race track.....	One mile or more in length.....	100.00	15.00
79	do.....	Less than 1 mile in length.....	50.00	50.00
80	Racks—knife, cane, or doll, or other like device.....	Upon which rings are pitched or balls thrown.....	25.00	750.00
81	Sewing-machine dealer.....		15.00	735.00
82	Ship broker or ship agent.....		10.00	140.00
83	Shooting gallery.....	State tax payable in each county.....	30.00	240.00
84	Skating rink.....		25.00	25.00
85	Street railroads.....	Each mile.....	2.00	\$44.58
86	Theater, each day.....	In city of more than 10,000 inhabitants.....	5.00	15.00
87	do.....	In city over 5,000 and not over 10,000 inhabitants.....	4.00	.....
88	do.....	In city over 3,000 and not over 5,000 inhabitants.....	3.00	3.00
89	do.....	In city over 1,500 and not over 3,000 inhabitants.....	2.00	75.00
90	do.....	In city of 1,500 inhabitants or less.....	1.00	281.00
91	do.....	If paid annually.....	25.00	1,250.00
92	Toll bridge.....		7.00	14.00
93	Wagon yards.....		5.00	935.00
94	Waterworks.....	In city of 40,000 inhabitants or more.....	35.00	140.00
95	do.....	In city of less than 10,000 inhabitants.....	20.00	820.00
	Total.....		.....	\$18,982.48

In 1898 the State collected from this source \$941,701.08; of which amount wholesale and retail liquor dealers paid \$559,600, beer dealers \$95,550, the remainder, \$286,551, being paid by other occupations taxed. While the administration of this law does not appear to be thorough or systematic, the form of taxation seems to be generally satisfactory. The tax is payable to local collectors.

The property owned by those subject to occupation tax as above set forth is, of course, within the fixed limitations of the law, subject to ad valorem taxes on valuations for State, county, and municipal purposes.

CORPORATIONS.

The real and personal property of substantially all classes of corporations is assessed for taxation in the several local taxing districts, the same as other property, and subject to the same inequalities and discriminations in practice. This is required by the general law framed in accordance with constitutional limitations which render modification in the general property tax, and its administration as applied to corporations, peculiarly difficult.

Various special forms of taxation have, however, been adopted and applied to different classes of corporations which will be noted, the gross receipts tax appearing to be favored. Owners of shares of stock in a corporation which is required to list or return its capital and property for taxation are, generally speaking, not required to return such shares.

RAILROADS.

The method of taxing railroads in this State is the general property tax, pure and simple, supplemented by an additional tax on gross receipts.

The constitution provides that all railroad property lying or being within the limits of any incorporated city or town within the State, shall bear its proportionate share of municipal taxation, and further, that such property shall be assessed and taxes collected in the several counties in which said property is situated, including so much of the roadbed and fixtures as shall be in each county.

In accord with these constitutional restrictions the law provides that every railroad company shall deliver annually to the assessor of each county and incorporated town or city a sworn statement of the real estate owned and the length and value per mile of the railroad, including the right of way, roadbed, superstructures, depots and grounds, shops, fixtures, and all personal property except rolling stock, all of which is listed in the county where situated.

The rolling stock is rendered in the county of the principal office of the company valued and equalized by the county commissioners' court in such county and returned to the State comptroller who apportions the value thereof to each county according to mileage of road. This valuation of rolling stock is then assessed by local assessors with the other property of the road.

Lately an attempt has been made to include something of franchise values with the values of property above referred to.

There appears to be no uniform method among assessors for the assessment of railroad property, each acting independently upon his own discretion. Such property is said to be rendered at whatever the local assessor will accept, and assessed at whatever the commissioners' court will agree to, the averages per mile for different roads ranging, in 1898, from \$2,818 to \$18,000, and usually at a portion only of its property value, and for much less than its value based upon stock and bonds.

There is no State board of equalization, and valuations of different roads are very unequal, and those of the same road vary greatly in the different counties. As in the case of individuals under the property tax, each corporation strives for low assessments and corporations do not seem to object to this inequality.

The tax commission framed a bill providing for the assessment of railroad property upon the basis of the market value of stock and bonds, that being regarded as a fair measure of value as laid down by the United States Supreme Court, to be made by local assessors as required by the constitution, according to mileage within their respective counties. This the commission thought would be an improvement upon the present guesswork at property valuations, the constitutional provisions depriving the legislature of authority to create a State board for that purpose. The bill proposed, although considered at the last session of the legislature, was not adopted.

This property tax is supplemented by a State tax of 1 per cent upon the gross receipts from passenger traffic within the State, called an occupation tax. The tax commission recommended an extension of the gross receipts tax to freight as well as passenger traffic.

In 1898 the 9,540 miles of railway with rolling stock in Texas were assessed at \$71,081,285, or an average of \$7,445 per mile.

On this valuation this property paid to the State in taxes the following amounts:

General State tax, 20 cents on the \$100	\$142,062.47
State school tax, 18 cents on the \$100	127,855.22
One per cent of passenger earnings	47,004.87
Total to State	816,922.06

Adding to this the amount of county taxes at the average rate of 60 cents on each \$100, amounting to \$426,187.41, gives approximately the amount of taxes paid by the railroads of the State in 1898, \$743,106.47.

In 1900 the number of miles was 9,784, and the total assessed value, including rolling stock, was \$31,298,288, being an average of \$3,308 per mile.

The total passenger earnings for year ending August 31, 1900, were \$5,717,844 and the occupation tax thereon \$57,173.44.

EXPRESS COMPANIES.

The special tax imposed on express companies is 1½ per cent of the gross receipts from business arising and terminating within the State, which is the only tax they pay, except an ad valorem tax on a small amount of personal property, such as horses, vehicles, and office furniture taxed locally.

The tax on gross receipts paid by these companies to the State in 1898 was \$11,883.31 and in 1900 \$13,986.88.

OTHER SPECIAL TAXES.

Steamboat and stage companies are subject to a tax of 1 per cent on passenger earnings.

Sleeping car companies pay the highest gross receipts tax in the State, being 2½ per cent on such receipts on business done within the State. They paid in 1898 \$3,862.25, and in 1900 \$4,573.51. They also pay to the State a tax of one-fourth of 1 per cent on the value of their capital stock in use in the State, based upon reports to the State comptroller of total capital stock, from which is deducted the value of all property other than rolling stock, which is valued according to the proportion of miles operated over within the State to total mileage.

Telegraph companies are taxed 1 cent on each full-rate message, and one-half cent on each half-rate message originating and terminating in the State. This tax was, in 1898, \$7,695.67, and in 1900, \$7,285.88.

Telephone companies are taxed 25 cents per annum on each instrument in actual use, this tax amounting in 1898 to \$2,485.75 and 1900 to \$5,499.35.

Insurance companies—life, fire, marine, accident, and other insurance companies—are taxed on gross receipts from business done within the State. Each life insurance company and each life and accident insurance company pays 2 per cent on gross premium receipts, and each fire insurance company one-half of 1 per cent on gross premium receipts; each marine, health, live stock, guarantee, or accident insurance company pays 1 per cent on gross premium receipts.

The tax in 1898 was \$100,613.61, and in 1900, \$115,455.97.

Street car companies pay an occupation tax of \$2 on each mile of track.

Gas companies pay an occupation tax of \$35 in cities over 10,000, and in smaller towns \$20, and the same rate is imposed on electric light and water companies. In 1898 electric light companies paid \$1,861, gas companies \$306, and water companies \$1,065.

The tax commission proposed the substitution of a tax of one-half of 1 per cent on the gross receipts of these companies for the occupation taxes referred to, and the extension of the gross receipts tax to some other classes of business.

The taxation of gross receipts is not a new form of taxation in this State, and seemed to be favored by the tax commission.

The various corporations and classes of business paying special taxes as above stated also pay an ad valorem tax locally upon property.

BANKS.

The law for the taxation of the property of banks appears to be loosely administered. The method of listing and assessing such property is for the local assessor to require from the bank a list of the shareholders and the number of shares owned by each. The real estate is assessed to the bank and the shares to the individual holders thereof. Complaint is made that shares are not assessed at their true value, as the law requires, but as a rule the value of real estate when added to the assessed value of the shares of stock amounts to from about 50 to 75 cents on the dollar of the par value of the paid up capital, the average being, according to the judgment of the tax commission, about 65 cents on the dollar of the par value of the stock. It would therefore appear that through this laxity and discretion on the part of assessors they have practically attained a degree of justice toward banks as compared with other property that is exceptional in the administration of the general property tax in American States.

The law relating to the listing and assessing of national banks requires a sworn list of stockholders, with the name and residence of each. Shareholders are also required to render shares of stock owned by them at their actual value. This provision is not complied with as a rule, and the law points out no effective method for the ascertainment by the local assessor of the actual value, the matter being left to his estimate. The result is, with regard to all kinds of banks, that, as in the case of other kinds of property, but a portion of the value of property and assets is rendered for taxation. When assessed this property is taxed as other local and personal property. The tax commission gave this subject careful consideration, and proposed and formulated a law to provide a way by which the assessing officer could ascertain the full and true value of this class of property, but no legislative action has yet been taken upon it.

That assessors fail to reach and assess the large sums of money deposited in banks and held by taxable citizens is vigorously set forth in the report of the tax commission, which gives the amount of individual deposits in the National banks of Texas, as shown by the reports made to the controller of the currency,

June 30, 1899, as \$44,564,956.54, and in December, 1897, \$41,826,131.81. while the money rendered for taxation in 1898 by individuals in the entire State was only \$5,864,416. This does not take into consideration the deposits with the 167 private banks and bankers in the State, so that "it is safe to say that not one dollar of money out of ten in Texas is listed for taxation."

The resources of some of the national banks in some of the cities of the State exceed the total valuation for taxes of personal property in the counties where such cities are located.

There are instances, it is said, of the rendition of money for taxation at 50 cents on the dollar which have been accepted and approved by the commissioners' court after due discussion of the question. This is referred to by the tax commission as strongly illustrating the inequalities of valuation for taxation in the State.

The commissioners proposed laws providing for discovery and valuation of such property for taxation, and said:

"If those who have money and wealth and good dividend-paying securities can be reached for taxation, there will be no trouble about the other property holders coming up with their share of the debt of highest obligation."

They also cite the phillipic of ex-President Harrison against the evasions and frauds of holders of intangible securities. The commission, however, seem to fail to grasp the fact that the defects referred to and remedial difficulties are inherent in the general property tax system.

INCORPORATION AND FRANCHISE TAXES.

Every domestic corporation chartered before the passage of the recent franchise act is required to pay to the Secretary of State an annual franchise tax of \$10, and every such corporation chartered after the passage of this act is required to pay \$10 on incorporation, and in each succeeding year an amount graduating as follows:

When capital stock is—

Between \$50,000 and \$100,000	\$20
Between \$100,000 and \$200,000	30
Over \$200,000	50

Foreign corporations authorized to do business prior to the passage of a recent act are annually required to pay \$25 when their capital stock is \$25,000 or less, and \$100 when their capital stock is between \$25,000 and \$100,000. All foreign corporations authorized to do business in the State after the passage of this act are required to pay an annual franchise tax of \$50 when that capital stock does not exceed \$100,000, and in addition thereto a tax of \$1 on every \$10,000 of capital stock in excess of \$100,000, but not exceeding \$1,000,000.

SUPPLEMENTARY REPORT

ON THE

TAXATION OF CORPORATIONS IN MICHIGAN.

[Prepared under the direction of the Industrial Commission by GEORGE CLAPPERTON, expert agent.]

Since the report on taxation in Michigan was prepared there have been some important developments in the experience of that State which are of special interest wherever taxation reform commands attention.

Michigan may be said to be passing through a transition period in taxation, or, as it has been designated, "an epidemic of equal taxation."

The work of the State board of tax commissioners during the year 1900, in increasing the valuations of real and personal property taxed under the general law of the State, has been referred to. The total increase in such property valuations in 1900 over 1899 was \$349,280,941, the increase of realty valuation being \$180,594,302, and of personalty \$168,686,639. The increase in property valuations both real and personal in 1900 over those of 1896 was \$212,450,028. This increase is in property coming under the general property tax, and assessed and valued by the usual methods.

According to the report of the State board of tax commissioners for 1900, just issued, the total assessed valuation of property, real and personal, under the general law, was \$1,817,450,028, divided as follows:

Real estate.....	\$1, 006, 453, 013
Personalty.....	310, 997, 015

The manner in which this materially increased assessment was distributed is shown by the following table:

Classes of property.	1899.	1900.
Real estate, whole State	\$825, 858, 711	\$1, 006, 453, 013
Real estate of 1,202 corporations	61, 882, 911	183, 808, 918
Real estate of 67 mining corporations.....	52, 142, 063	120, 261, 072
Personal property, whole State	142, 830, 376	310, 997, 015
Personal property of 1,202 corporations	20, 670, 101	52, 111, 867
Personal property of 67 mining corporations.....	4, 060, 894	11, 896, 028
Total real and personal property, whole State.....	968, 189, 087	1, 817, 450, 028
Real and personal property of 1,202 corporations	82, 553, 012	185, 920, 785
Real and personal property of 67 mining corporations.....	56, 202, 964	126, 717, 994

An examination of the assessed valuation of property in the cities of the State for the years 1899 and 1900 discloses the fact that the increase in the value of real estate in such cities for 1900 over 1899 was \$45,347,232, while the increase in personalty was \$87,309,936, making a total increase of valuation in the 78 cities of the State of \$132,657,168. A further comparison shows that for the year 1900 the percentage of increase in the assessed valuations of real estate in 1900 over that of 1899 was 22, while that of personal property was 119.

The total taxes for 1900 upon these property valuations under the general law were \$20,380,532.86, or \$111,503.31 less than in 1899; the sum of \$15,380,063.88 being derived from real estate, and \$5,000,468.98 from personalty. The percentage of this total tax derived from real estate was 75.465, and from personalty 24.536, and the average rate of taxation per \$1,000 of assessed valuations was substantially \$15.47.

The percentages of total taxes derived from real estate are shown to be 85.836 in 1899, and 75.465 in 1900, and from personal property 14.064 in 1899, and 24.536 in 1900. The rate of taxation is shown to be \$21.165 in 1899, and \$15.47 in 1900 on each \$1,000 of valuation, presumably ascertained by the same methods of computation. It will be remembered that it was shown in the original report for this State that the rate of taxation ascertained by the method of computation employed in the auditor-general's office in 1896 was substantially \$17.60 per \$1,000 of valuation.

The increase in enrollment and assessment of intangible personalty, such as money, mortgages, bonds, stock, etc., by the State board in 1900 over previous years was very great, especially in the cities. These increased assessments were marked by great inequality. As a result of such increase there is general complaint and denunciation of the laws and methods employed by the commissioners on the part of the owners of such property, which had theretofore largely escaped taxation. It is contended on their part that there is great inequality and discrimination in the discovery and assessment of this class of property; that the portions of such property found and enrolled were, because of excessive valuations as compared with other property, and taxation at local rates, disproportionately and excessively taxed; and that in consequence capital and capitalists are removing from the State to an alarming extent, and that the course pursued by the commissioners under present laws in this regard, if continued, will seriously jeopardize the business and prosperity of the State.

On the other hand, it is claimed by the board that inasmuch as the year 1900 was the beginning of its work in this direction, it was necessarily imperfect and incomplete, resulting in more or less inequality; but that if it is permitted to continue its work in respect to assessment and valuation of property under the general law, it will be able with additional knowledge and experience to subject a much larger portion of property to assessment, and secure greater equality in valuations, so that there will eventually be such increased assessment and correct valuations as will so reduce the rates of taxation on all property that none will be excessively burdened.

There appears, however, to be a growing sentiment among the people, in view of this experience and more careful consideration of the subject, in favor of a greater restriction of the general property tax, and the adoption of special methods of taxation for intangible personalty and some other forms of property.

The theory and purpose of the State board of tax commissioners, according to the report for 1900, seems to be to "improve" the general property tax and subject all forms of property taxed under the general law to assessment at full cash value and uniform rates; and the board expresses considerable confidence in its ability to eventually perform that task.

CONSTITUTIONAL AMENDMENTS.

The provisions and fate of the so-called Atkinson bill providing for the taxation of railroads and other quasi-public corporations have been referred to in detail. The act was practically declared unconstitutional, because in some of its provisions it was in violation of the principle of uniformity applicable to all property taxed under the general law. This bill was the favorite measure of Governor Pingree, whose conception of equal taxation, to which his administration was positively committed, appeared to be a universal property tax at uniform valuation and uniform rates; and he had, against bitter opposition, directed all the force and energy of his administration for years to secure its enactment. When the bill which had characterized his administration was thus held unconstitutional, he determined to legalize the method of taxation it provided by special constitutional provision. To this end he convened the State legislature in special session a few days before the general election of 1900, for the avowed purpose of submitting to a vote of the people amendments to the constitution permitting the "enactment of laws that will provide for the equal taxation of all property by an assessment of the same at its actual cash value." Convened at such a time, the legislature, in view of existing political exigencies and the general sentiment that had been created among the people of the State in favor of the abstract principle of "equal taxation," hastily and without due consideration submitted to popular vote the amendments embodying the demands of the governor, which were carried by a large majority of the votes cast upon them. These amendments maintain the legislature's authority to provide for specific taxes on corporations, and also vest in that body authority to provide for the assessment of the property of corporations at its true cash value by a State board and for levying taxes thereon, and expressly direct "that the legislature shall provide a uniform rule of taxa-

tion for such property as shall be assessed by a State board of assessors, and the rate of taxation upon such property shall be the rate which the State board of assessors shall ascertain and determine is the average rate levied upon other property upon which ad valorem taxes are assessed for State, county, township, school, and municipal purposes." The governor, evidently construing the adoption of these amendments to be an expression of the popular will in favor of the abolition of the specific tax system in vogue, and the extension of the general property tax in modified form to corporations paying specific taxes, again convened the legislature in special session in December, 1900, and directed all the force and pressure of the executive toward the enactment of laws that should embody the alternative method prescribed for the taxation of railroad, express, telegraph, and telephone companies. The legislature, however, not being in accord with the views of the governor and being averse to hasty legislation upon so important a subject, refused to enact such laws, deferring action upon the subject until the then incoming legislature should convene in regular session under a new administration.

Thus the administration of Governor Pingree, committed to the cause of "equal taxation" through one uniform tax on property values, ended without achieving any practical results in State legislation upon the subject. It succeeded, however, in securing the adoption of the restrictive constitutional amendments referred to, which give the legislature power to extend the general property tax to quasi-public corporations through "uniform valuation" and "average" rates of taxation; but these amendments are regarded by many intelligent people of the State as likely to impede modern and progressive legislation upon the subject of taxation and delay progress toward the attainment of "equal taxation" in fact.

The legislature of 1901, in session at this writing, have under consideration several bills providing, through various methods, for the substitution of an ad valorem tax for the existing specific tax upon the earnings of railroads and other quasi-public corporations. While there is a strong popular sentiment throughout the State in favor of such ad valorem taxes, there is also positive and intelligent opposition to a change in the existing specific tax method.

Through years of agitation equal taxation has become a "paramount issue" in Michigan, the people of the State being divided thereon into 2 opposing forces, one contending for one rule and one method of taxation applied to all property as essential to equal and uniform taxation, the other contending for diversified methods adapted to special forms of wealth as essential to the attainment of the desired result, and insisting that the methods proposed for the extended application of the general property tax would be conducive to unequal taxation in practice. While there is no division upon the abstract principle of equal taxation, there is active conflict as to the methods for the attainment of the desired result.

VALUATION OF MICHIGAN RAILROADS.

The act creating a board of State tax commissioners declared one of the duties of that board to be "to inquire into and ascertain the valuation of the property of corporations paying specific taxes, and to ascertain the actual rate of taxation, as based upon the valuation of said properties, that is paid by said corporations," in order to determine whether such property pays upon its true value a rate equal to the rate paid by property taxed under the general law. By virtue of this authority the board has undertaken to secure an accurate appraisalment of the property of railroad, telephone, telegraph, and express companies in the State. Prof. M. E. Cooley, of the engineering faculty of the University of Michigan, was employed to supervise the work of valuing the "tangible property" of these corporations, and Prof. Henry C. Adams, of the same university, to determine the value of their "immaterial" or "intangible" property. Each of these men was provided with an able corps of expert assistants, most of whom were civil engineers, graduated from engineering colleges or technical schools, some 15 institutions being represented in this, perhaps, the most elaborate attempt to determine property values of railroads, etc., ever made. Prof. M. E. Cooley, M. Am. Soc. M. E., as appraiser, was the head of the entire force, and the principal other members of the staff were Henry E. Riggs, M. Am. Soc. C. E., of Toledo, Ohio, chief inspector in charge of civil engineering; T. H. Hinchman, jr., M. Am. Soc. M. E., Detroit, chief inspector in charge of mechanical engineering; D. Farrand Henry, M. Am. Soc. C. E., Detroit, chief inspector of plank roads and river improvement companies; William S. Conant, M. Am. Soc. M. E., Detroit, chief inspector of telegraphs; William J. Rice, New York, chief inspector of telephones; Herbert C. Sadler, M. Inst. Nav. Arch. and Marine Engrs., chief inspector of vessel properties; F. G. Susimihl, of Michigan, architect.

The final settlement of various questions and knotty points which arose in formulating the basis for the valuation of certain items, together with a review of the methods and final results, was entrusted to a special board of review, composed of Messrs. Octave Chanute, of Chicago; Charles Hansel, of New York; Prof. Charles E. Greene, of Ann Arbor, and Col. G. W. Vaughn, of Chicago, all of whom are members of the American Society of Civil Engineers, and, not having been engaged in the detail work, were presumably able to take a broad view of the matters submitted to them.

While the detailed report of these appraisements has not yet been published, we are able from information obtained to present the general result of the work with respect to railroad property. The work of appraisement covered a period of 5 months, being commenced in September, 1900, with 54 men. In October there were 88 men employed, in November 111, in December 98, and in January, 1901, 51. The total cost of the appraisement was about \$57,000.

The method adopted for determining the value of the "physical property" of a railroad was to estimate by special "field inspection" the value of the separate items of property composing it, which when combined were assumed to constitute the true value of its entire property. The appraisers first determined the "cost of reproduction" of the various constituent parts of the property of a railroad, such reproduction value representing what it would cost to build a road of entirely new materials and labor where the road exists, even to the extent of covering the cost of surveys, right of way, legal expenses, interest, etc., as shown by the following summary form, and then by suitable reductions the "present value" was determined, taking into consideration the depreciation of the elements due to wear:

SUMMARY.

MICHIGAN RAILROAD APPRAISAL.

Mileage.

Main line.....
Branches.....
Spurs and sidings.....

Railroad No. —. Gage —. Value of physical properties——.

Subject.	Cost of reproduction.	Present value.
1. Engineering (4 per cent items 2 to 25, inclusive, and 33)		
2. Right of way and station grounds.....		
3. Real estate.....		
4. Grading.....		
5. Tunnels.....		
6. Bridges, trestles, and culverts.....		
7. Ties (cross and switch ties).....		
8. Rails.....		
9. Track fastenings.....		
10. Frogs, switches, and crossings.....		
11. Ballast.....		
12. Track laying and surfacing.....		
13. Fencing.....		
14. Crossings, cattle guards, and signs.....		
15. Interlocking and signal apparatus.....		
16. Telegraph, (30) telephones.....		
17. Station buildings and fixtures.....		
18. Shops, roundhouses, and turntables.....		
19. Shop machinery and tools.....		
20. Water stations.....		
21. Fuel stations.....		
22. Grain elevators.....		
23. Warehouses.....		
24. Docks and wharves.....		
25. Miscellaneous structures.....		
26. Locomotives.....		
27. Passenger equipment.....		
28. Freight equipment.....		
29. Miscellaneous equipment.....		
30. Ferries and steamships.....		
31. Electric plant.....		
32. Terminals.....		
33. Legal expenses (0.5 per cent items 2 to 25, inclusive, and 33).....		
34. Interest (3 per cent items 1 to 34, inclusive).....		
35. Miscellaneous expenses, {Organization, 1.5 per cent.....		
36. Miscellaneous expenses, {Contingencies, 10 per cent.....		
Total cost of construction and equipment.....		
37. Stores and supplies.....		

The investigations of this "physical property" required the appraisers to cover 57,000 square miles of Michigan territory and traverse 10,000 miles of railway track, every mile of which was actually inspected, as were the engines, car shops, machinery, and other physical property.

The valuation gave, in the first place, the estimated value of each item as new work, material, or equipment, each item, however, being given a percentage mark for "condition representing the relation which the actual existing value bears to the estimated value for renewal or replacement." In estimating the cost of the individual items the market price or an average price for a term of years was used, according to circumstances, but no attempt was made to ascertain or use the actual cost price paid by the railways.

The values of real estate and rights of way were, we understand, determined largely by estimate based upon such information as the appraisers were able to obtain.

It will be seen that the criterion of values adopted was the present cost of the various constituent parts with estimated reductions for depreciation, and including various estimated expenses that might be incurred in procuring and putting them into combined operation as a railroad.

It is claimed by railroad managers and owners, who as a class have ceased to regard this method as affording a reliable criterion of the value of a railroad, that "the value of such separate items of property, the combination of which constitute a railroad do not necessarily or even prima-facie represent the actual value of the combination, the railroad as a single entity."

It is said that the great variation in the mileage, cost of construction, and the avails of operation discredit such methods of valuation for business purposes and render them unreliable for purposes of taxation. It is argued that the constituent elements of a railroad possess little stable value when disassociated from their earning capacity in combined operation as a unit.

While the State board of tax commissioners apparently regards this laborious appraisement as forming a reliable basis of valuation for taxation, or at least as a basis of comparison with the taxation of other forms of property, railroad men seem to reject such methods and regard the results as unreliable for any purpose.

Even though this elaborate appraisement of the physical values of constituent parts of a railroad property should be accepted as a reliable basis of valuation for purposes of taxation, another difficulty arises in the minds of taxpayers as to the practical attainment of "equal taxation" in the failure of local assessors to value all other forms of property with the same degree of skill and accuracy.

Thus, while the appraisement may justly be regarded as the most elaborate attempt ever made to ascertain the actual value of railroad property, of great importance for many purposes and perhaps of great benefit in the solution of the problem of equal taxation of such property with property in general, its practical value and reliability for purposes of taxation are still matters of conjecture and dispute in the State where the appraisal was made.

NONPHYSICAL PROPERTY.

In connection with this value of physical property is taken what Professor Adams has designated as the "nonphysical" property. In his preliminary report he indicates some of the elements of this nonphysical property of a railroad, as follows:

"It is submitted that this nonphysical or immaterial element is not a simple commercial element, but includes, among other things, the following:

"1. It includes the franchise—

"a. To be a corporation.

"b. To use public property and employ public authority for corporate ends.

"2. It includes the possession of traffic not exposed to competition, as, for example, local traffic.

"3. It includes the possession of traffic held by established connections, although exposed to competition, as, for example, through traffic that is secured because the line in question is a link in a through route.

"4. It includes the benefit of economies made possible by increased density of traffic.

"5. It includes a value on account of the organization and vitality of the industries served by the corporation as well as of the organization and vitality of the industry which renders the service; this value consequently is, in part, of the nature of an unearned increment to the corporation."

Upon this theoretical and ingenious classification, Professor Adams proceeds to work out the "immaterial" or "intangible" values of the railroad property of the

State, which, together with the "physical" values determined by Professor Cooley, are assumed by the State board of tax commissioners to represent the actual value of railroad property for purposes of taxation. The classification and methods pursued by Professor Adams in this regard are unique, and have created intense interest and discussion throughout the State. These processes receive the emphatic commendation of those who favor the application of one uniform rule of valuation and one uniform rate of taxation to all property, and advocate an increased tax upon quasi-public corporations through the ad valorem method. They contend that all these elements possess value to their owners and should be taxed upon an equality with other property.

On the other hand, while the classification referred to would naturally excite interest and criticism among representatives of railroads under any circumstances, when the proposition is made to include such elements as a basis of valuation upon which to levy taxes at the same rates applied to other property under the general property tax system, the effect upon such interests is somewhat startling, and provokes severe inspection and criticism. It is declared that such elements as "benefit of economies made possible by increased density of traffic," "organization and vitality of the industry which renders the service," or in other words, industry, ability, and thrift, are equally applicable to many other kinds of business and income, producing property of corporations and natural persons; but that the suggestion that they be included in their valuation for taxation has never been made and would not and could not be considered or tolerated at all. Such classification of "nonphysical" values in connection with the crude general property tax rates is regarded by men of experience in railway management as impractical and a basis for extortionate taxation. It is contended that the fallacy of including these various elements of nonphysical value, which, if based on anything, are based upon earning power as a basis of taxation, rather than the earnings themselves, is apparent: that as a basis of comparison with other property valuations under the prevailing system, it is misleading and unfair; and as a basis for "equal taxation," delusive and inequitable.

There is clearly considerable force to these criticisms and arguments. Mr. Adams himself says that "the task of appraising railway properties undertaken by this commission is akin to, if not identical with, the revaluation of railway securities, should this become necessary for reorganization or for transfer." While this statement may be received in justification of the classification of elements of nonphysical values, such classification may be regarded as a practical demonstration of the futility of comparing an earnings tax with the general property tax, and of the attempt to subject all modern forms of property to one uniform tax upon value.

Mr. Adams, although faithfully trying to perform the difficult task undertaken by the State commission under the direction of the law, recognizes earning power of a corporation of this character as "undoubtedly the basis of all valuation of corporate properties," and that "it is the income account from which this earning power can be determined."

After constructing this unique classification of "nonphysical" values and sustaining their existence by reference to the practice of corporations with respect to revaluation, and rules of courts in certain instances; discarding statements of assets and liabilities, cost of property, and par or market value of stocks and bonds as unsatisfactory for the purpose of the commission, and recognizing earning power as shown by railroad accounting as an acceptable basis for appraisal of such values, Professor Adams formulates a rule "for the appraisal of the immaterial values of railway properties," or what he terms "the capitalization of corporate organization and business opportunity," as follows:

"1. Begin with gross earnings from operation, deduct therefrom the aggregate of operating expenses, and the remainder may be termed the 'income from operation.' To this should be added 'income of corporate investments,' giving a sum which may be termed 'total income,' and which represents the amount at the disposal of the corporation for the support of its capital and for the determination of its annual surplus.

"2. Deduct from the above amount, that is to say, 'total income,' as an annuity properly chargeable to capital, a certain per cent of the appraised value of the physical properties.

"3. From this amount should be deducted rents paid for the lease of property operated and permanent improvements charged directly to income. The remainder would represent the surplus from the gross earnings from the year's operations, and for the purpose of this investigation may be accepted as an annuity which, capitalized at a certain rate of interest, gives the true value of immaterial properties.

"7. To obviate the criticism that both gross and net earnings vary from year to year, it is suggested that in place of a single year's income account, the average income account of a period of 10 years be accepted as the basis of computation. The reason for accepting a period of 10 years is that under existing commercial conditions it is likely that the corporation whose property is appraised would during that period pass through years of both prosperity and adversity.

"8. It will be observed that the above rule fails to appraise the speculative element in railway property. While this element doubtless affects the price of corporate stocks and corporate bonds, it is not entirely clear that it should influence appraisals for the purpose of taxation. Should, however, the commission desire to compute the present worth of property, as resting upon expectations in the future as well as upon earnings in the past, the pertinency of the above rule would not thereby be impaired. This is true because the speculative value of properties must, from the nature of the case, be a modification of their value computed upon the basis of their earning capacity."

We are advised that the "certain per cent" referred to as a basis of capitalization in the foregoing rule was 4 per cent, that being regarded as a proper criterion for the purpose for which it is employed.

While it is possible that this theoretical method applied to all income-producing property and business of corporations and natural persons throughout the State might evolve "equal taxation," we apprehend that the suggestion of such a universal application would not commend itself to general public esteem. Certainly its rigid application as a basis of valuation to one class of property upon which is to be levied the "average rate" of taxation, while all other property is assessed under the general property tax, would result in taxation unequal in the extreme.

When this complicated and expensive process is followed out, the fact remains that a tax based upon such valuations is nothing more or less than a tax upon income, and its use would transform the general property tax, with respect to one class of property, from a mere inefficient and inadequate method to a system of extortionate taxation sanctioned by law.

Its modification with a view to the attainment of approximate equality would obviously require the vesting of discretion and power of adjustment as to rates or valuation in a board, and involve continued contention; in short, would continue the fundamental defects of the property tax which progressive thought and legislation is seeking to escape. If adopted, it would apparently be a distinct departure from correct principles.

RAILROAD VALUES.

The result of the foregoing appraisalment of physical and nonphysical values is shown as follows:

Cost of reproduction, all elements new, by Professor Cooley	\$201, 018, 081
Cost of reproduction, allowing for depreciation, by Professor Cooley..	164, 812, 280
Value of nonphysical elements, by Professor Adams.....	85, 988, 632
Total value of physical and nonphysical elements.....	200, 800, 862

The compilation of these novel reports in their detailed forms will occupy 7 volumes.

APPRAISAL BASED ON EARNING POWER.

Besides the appraisals of Professor Cooley and Professor Adams, another appraisal of the values of railroad properties in Michigan was prepared by Robert C. Oakman, one of the State tax commissioners in 1900. The values of the former were absolute, no attention being paid to the conditions of operation or prosperity of the roads. Mr. Oakman's values were based chiefly upon the principle of earning power, due regard being given to such elements as advantage and disadvantage of location, quality, quantity, market facilities, environment, and other conditions, which, while not susceptible of separate valuations, are considered as means of fixing the true value of a property as an entirety. Due regard was also given to gross earnings, expenses, stock values, bonded debts, etc.

Mr. Oakman says in his report that the board "has found that in the markets of the world these properties have a value which is measured mainly by the income which they will produce. The commercial world, when it desires to invest in stock and bonds issued by these corporations, informs itself about the earning capacity of the properties on which they are based. All its searchlights are directed upon their earning power. Why should not the State do likewise?"

He also points out clearly that the State board in the valuation of these properties has followed the mandate of the law to ascertain their actual cash value.

The following comparison of taxes based upon Mr. Oakman's valuations is made:

Specific taxes paid on railroad earnings in 1899, \$1,240,730.90, showing a rate of taxation based upon cash valuations of \$8.652 per \$1,000.

Taxes that would have been paid under the average rate of 1899, \$21.18 per \$1,000, \$3,940,985.57.

Taxes that would have been paid under average rate of 1900, \$15.47, \$2,885,331.18.

What the average rate of taxation might be in case all the property in the State were as completely valued by the method applied to railroad property is significantly omitted.

Commenting upon the work of the commission in his report, Mr. Oakman says:

"If railroad property is to be assessed and taxed at cash value at the average rate, and not specifically, it would, in my opinion, be unfair to allow exemptions or deductions of other property in the State. It must be remembered that restrictions of rates and fares of transportation companies operates as a tax. Hence all exemptions of other property creates an excess as against those incapable of shifting the burden. When exemptions are made or deductions allowed the total of such exemptions or deductions is thrown upon property which is not exempt.

"I wish to say that months before any law taxing railroads on an ad valorem basis could take effect there would be ample time in which to give these appraisals a thorough review, to the end that railroad properties would be assessed and taxed 'in the same manner and to the same extent' as other properties paying taxes under the general tax laws of the Commonwealth."

Earning power is the keynote of his valuation.

In the manner thus briefly set forth Mr. Oakman estimates the cash value of the railroad properties of the State to be \$186,511,385.34.

The following comments on "fixing valuations" are taken from his report:

"Having in mind the necessity for the specific examination of the roads, it may be stated that the valuation of the railroad property operated within the State found by capitalizing at 6 per cent the net earnings of the revenue-producing roads, figured upon the system herein referred to, and computing the earning power of the roads showing deficits in operation in their reports on the basis of the average ratio of expense to income for all the roads within the State, say 73.79 per cent, will reach the sum of \$186,511,385, while the valuation of the same property computed throughout on a capitalization of 6 per cent upon net earnings, based upon the said average, 73.79 per cent of expense to income, will amount to \$172,154,412. It is probable that an examination of the accounting method of the roads as suggested, and a further investigation as to location, traffic arrangements, terminals, connections, and other elements that go to make value, would result in a material increase, or perhaps some decrease in special cases, of the valuations which appear in the appendix."

REPORT ON TAXATION IN CANADA.

[Prepared under the direction of the Industrial Commission by GEORGE CLAPPERTON, expert agent.]

The systems of taxation in vogue in the Provinces of Ontario and Quebec, which are fairly representative of the systems throughout the entire Dominion of Canada, present features and principles of especial interest and importance.

A distinctive feature of the systems of taxation in the provinces named is the complete separation of municipal from provincial or state taxation. Each municipality (county, city, or town) is entirely independent of the Provincial Government in the assessment and levying of taxes for local purposes.

In the Province of Ontario the "Revenues from Companies," so called, is becoming an important source of provincial taxes, and is a distinctively modern method of taxing corporations. The supplementary revenue act imposes an annual tax upon the income or capital stock of corporations or companies for provincial purposes. The yield from this source in the year 1900 was more than a quarter of a million dollars.

Another distinguishing and established feature of Ontario taxation, and one embodying a principle of especial interest in the United States, is that of the tax upon incomes. The annual income of individuals and corporations, within well-defined limitations, is assessed as property, and taxed at the same rates as other property. While the income tax law is indifferently administered, it constitutes an important factor in the Ontario system of taxation.

In the Province of Quebec there is a provincial tax on commercial corporations, based upon capital and income, and in the case of railways, upon mileage. In the city of Quebec there is no property tax in the usual sense of the term. Municipal taxes are based upon the rental values of property, and are supplemented by certain fixed annual duties upon particular kinds of business. Personal property is not directly taxed.

In the city of Montreal there is a property tax upon real estate, but no distinct tax upon personal property either tangible or intangible. There is a "business tax" based upon the rental values of premises occupied for business purposes, special taxes upon certain persons and kinds of business, and an elaborate system of licenses, from which sources a large portion of the municipal revenues are derived.

PROVINCE OF ONTARIO.

The revenues of the Province of Ontario, amounting to about four and one-half millions of dollars in 1900, are provided through special subsidies from the Dominion of Canada, receipts from Crown lands, various license and other fees, stamp taxes, and, latterly, revenues from companies and graduated succession duties.

The amount received from law stamps in the year 1900 was \$55,410.27; from succession duties or inheritance taxes, \$229,676.51; and the amount of revenues from companies, so called, \$229,774.44.

REVENUES FROM COMPANIES.

Until the year 1899, the taxation of companies was left as a source of revenue exclusively to the various municipalities of the Province, but in that year an act was passed and subsequently amended appropriating a large proportion of the income taxes upon companies for supplementary provincial taxes, thereby seriously encroaching upon what had theretofore been an important source of local revenue.

This act effected a great change in the local taxation of certain classes of companies, limiting the local income tax to so much of the income of such companies as was earned in the municipalities in which they are located, and imposing an annual government or provincial tax on all other income, and in some cases upon capital.

By this act the following classes of companies, transacting business in the Province of Ontario under their names or otherwise, are taxed for provincial purposes as set forth below:

BANKS.

Every bank is required to pay a tax of one one-hundredth of 1 per cent on its paid up capital stock, when such paid up capital stock is \$2,000,000 or less, and \$25 for every \$100,000 or fraction thereof in excess of the sum of \$2,000,000 and not exceeding \$6,000,000. Every bank is also required to pay an annual provincial tax of \$100 for the head office in the Province, and \$25 for each additional office, branch, or agency in the Province, but not upon more than one branch or agency in any one place.

When the principal place of business of any bank is in another Province of Canada, and it employs within Ontario only a part of its paid up capital, and has not to exceed five agencies or branch offices within Ontario, the Lieutenant-Governor-in-Council has power to reduce the amount of the aforesaid tax, "regard being had to the amount of capital or other moneys of such bank" at any time in use in Ontario, but the tax exacted shall not, in any case, be less than one-tenth of 1 per cent upon one-half of the paid up capital of such bank.

INSURANCE COMPANIES.

Every life insurance company transacting business in Ontario is required to pay a tax of 1 per cent, and every other insurance company a tax of two-thirds of 1 per cent, calculated upon the gross premiums received by such company from business transacted in the Province during the preceding year. In the case of mutual fire insurance companies which receive premiums in cash, the tax is calculated on the gross premiums received by such companies in cash, in respect of the insurance transacted on the cash plan in said Province during the preceding year.

Where a life insurance company has its head office outside of Ontario and has an annual income of less than \$20,000 from premiums on policies on the lives of residents of said Province, and where such company loans money on the security of lands within the Province, it is required to pay a tax of 1 per cent calculated on the gross premiums received from such policies, and of one-fourth of 1 per cent on the gross annual income received from loans on policies and on lands, or securities on lands, in the Province.

Where an insurance company pays the tax thus imposed for provincial purposes, it is exempt from assessment and taxes by or on behalf of the municipality in which the head office is situated upon so much of its income as is derived outside of the municipality in which the head office is situated; but this does not exempt it from local assessment or prevent the taxation of shareholders resident in such municipality or of shareholders residing in other municipalities, as otherwise provided. The premiums received by a company are not assessable by a municipality.

Provision is made for retaliatory taxes upon companies organized in any other country or state and doing business in Ontario, where such country or state imposes a tax or license fee which has the effect of discriminating against Canadian companies having their principal offices in Ontario.

Provision is made for annual statements to the provincial treasurer of gross premiums received by companies or agents of companies doing business within the Province.

LOAN COMPANIES.

Every loan company which transacts business in Ontario is required to pay a provincial tax as follows:

a. Companies with fixed or paid-up capital, \$65 where the paid-up capital is \$100,000 or less, and 65 cents on every additional \$1,000 or fraction thereof of paid-up capital.

b. Companies having terminating or withdrawable capital as well as permanent or fixed capital, the sum of 65 cents on every \$1,000 of paid-up, terminating, or withdrawable capital after the first \$100,000, in addition to the amount payable under clause a.

c. Companies having terminating or withdrawable capital only, the sum of 65 cents on every \$1,000 of such capital after the first \$100,000.

d. Where a company has its organization and head office in Great Britain or in a Province of the Dominion outside of Ontario and employs a part of its funds in Ontario, the Lieutenant-Governor in Council may direct that the tax shall be calculated upon the amount of the funds used or employed by the company in Ontario.

A loan company paying the tax thus imposed by the Province is exempt from assessment or taxation, by or on behalf of the municipality in which the head office is situated, upon so much of the income as is derived from moneys invested in outside municipalities or places, but shareholders residing in the municipality where the head office is located, or elsewhere in the Province, are taxable by such municipality.

TRUST COMPANIES.

Every trust company doing business in Ontario pays a tax of \$250 when the paid-up capital does not exceed \$100,000 and the sum of \$65 on each additional \$100,000 or fraction thereof; and when the gross profits, exclusive of interest from invested paid-up capital, are \$25,000 or more, it pays the further sum of \$500 per annum.

A trust company paying this provincial tax is not taxable by the municipality in which the head office is situated for or in respect of trust money, or securities therefor, or income arising therefrom, or personal property held in trust for persons who reside elsewhere within the Province, but such last-mentioned persons are taxable by the municipality in which they reside.

RAILWAY COMPANIES.

Every steam railway company operating lines within the Province is required to pay a provincial tax of \$5 per mile of railway operated, for which both owning and operating companies are liable. The measurement does not include switches or double track. Such companies are also taxed for local purposes, as hereinafter set forth, but are not liable to municipal tax on the tracks and roadways upon or along any street or highway.

STREET RAILWAYS.

Every street or electric railway in any city in the Province pays a provincial tax of \$20 per mile for each mile of track when the whole does not exceed 20 miles; \$35 for each mile when the whole line exceeds 20 miles but does not exceed 30 miles; \$45 per mile for each mile when the whole line exceeds 30 miles but does not exceed 50 miles, and \$60 per mile when the whole line exceeds 50 miles. The mileage in each instance is computed on single track, each mile of double track being counted as 2 miles of single track; switches, sidings, etc., and track not in general use for passenger traffic not being counted.

TELEGRAPH COMPANIES.

Every telegraph company owning a line operated within the Province pays a tax of one-tenth of 1 per cent on the paid up capital of such company, and every company operating in the Province a line or part of a line under lease or agreement with the owners pays a tax of one-tenth of 1 per cent on the paid-up capital of such operating company, both owning and operating companies being liable for the payment of the tax.

Every railway company or other company other than a telegraph company which owns or operates a telegraph line in the Province pays a tax of one-tenth of 1 per cent upon the total amount of capital invested in the whole telegraph line or works.

Power is vested in the lieutenant governor in council to remit the tax upon the capital invested in telegraph lines used exclusively for railway and not for commercial purposes, and upon so much of the capital as shall be invested in portions of lines beyond the limits of Ontario.

TELEPHONE COMPANIES.

Every telephone company operating a telephone line for gain in the Province pays a provincial tax of one-eighth of 1 per cent upon the paid-up capital of such company.

GAS AND ELECTRIC COMPANIES.

Every gas and electric company is required to pay a provincial tax of one-tenth of 1 per cent on its paid-up capital, but this does not apply to any such company operated by a municipality.

NATURAL-GAS COMPANIES.

In compliance with the provincial policy of retaining and deriving benefit from the natural resources of the country, every company engaged in producing, transmitting, or transporting natural gas is required to pay into the provincial treasury the sum of \$1,500 and a tax of 1 per cent upon its gross receipts.

The lieutenant-governor in council has power to remit or reduce taxation on any small domestic natural-gas company organized for the purpose of lighting or producing heat for mere domestic or local purposes within the county in which the gas

is produced, or where it is shown that the producing power of the gas wells has become greatly lessened by use or time, or he may reduce the amount of said tax upon a company having paid-up capital stock of less than \$5,000.

EXPRESS COMPANIES.

Every express company operating upon 400 miles of railway or less in the Province pays a provincial tax of \$800 and an additional tax of \$125 for every additional 400 miles or fraction thereof, which tax, however, does not apply to any company transmitting goods in sealed cars over any line of railway in the Province between two points both of which are outside the Province, where such company does not receive or deliver goods at any station in the Province.

SLEEPING AND PARLOR CAR COMPANIES.

Every sleeping and parlor car company doing business in the Province by leasing or hiring its cars to railway companies, or whose cars are used by such companies within the Province, is required to pay an annual tax of one-third of 1 per cent upon the capital of the company invested in cars and rolling stock in use in Ontario.

Banks, street or electric railway companies in cities, telegraph, telephone, gas, electric lighting, natural gas, express and sleeping or parlor car companies paying taxes for provincial purposes are also assessable and taxable for municipal purposes, as hereafter set forth.

ADMINISTRATIVE PROVISIONS.

Insurance, loan, or trust companies are required to keep their books of account in such manner as will enable the assessors to determine at what sum the company is assessable in the municipality in which the head office is situated.

On or before the 1st day of June in each year every corporation or company subject to the foregoing provincial taxes is required, without notice or demand, to deliver in duplicate to the provincial treasurer a detailed verified statement setting forth its name, business, amount of capital stock, and the amount thereof paid up; and in addition, in the case of a bank, the name of each office or agency thereof in the Province; and in the case of sleeping or parlor car companies, the amount of capital used or invested in cars or rolling stock used in the Province; and in the case of railways, the number of miles in operation in the Province; and in the case of street or electric railways or other companies paying a mileage rate, the number of miles in a city or cities within the Province, together with such other information as may duly be required.

A penalty of \$20 a day during default in furnishing such statement, and double the tax imposed, is provided by law.

REVENUE.

The provincial revenue realized from taxes upon companies in 1900 was \$229,774.44. As already stated, this source of revenue had previously been left exclusively to the municipalities. It will be observed that this act imposes various kinds of taxes, mostly on the basis of income, upon various "new forms of wealth," without much regard to uniformity or equality of taxation, as compared with other forms of property. This tax, however, so recently inaugurated, may perhaps be regarded as in an experimental stage. The legislature has the power to amend the act in such manner as it sees fit, and may therefore make it important as a source of revenue and as a means of imposing upon companies taxes, in addition to municipal taxes, by which they will be made to bear their full share of the public burdens.

These classes of companies, as hereinafter set forth, are subject to local taxes upon real estate and upon income in home municipalities.

LOCAL TAXATION.

Since the consolidation of assessment acts in 1866 property in towns and cities has been assessed largely at its "capital value," instead of upon its annual rental value as theretofore. Wealth is the basis of municipal taxation, and the property tax (confined largely by expressed and implied exemptions to real estate) prevails, supplemented by a personal income tax. Little attempt is made to reach intangible forms of corporate property, and there is little distinction between the property of corporations and individuals in municipal taxation. The assessment act has not determined what a franchise is, and franchisees are not taxed. As wealth in corporate form is

rapidly increasing, the inadequacy of the present system of taxation in respect to it is becoming more and more apparent.

The factor of equalization as between municipalities is eliminated. Each municipality (county, city, or town), being entirely independent of other municipalities and of the general government in local taxation, is free and unhampered in the raising of revenues from property and incomes for its own purposes. In the subdivisions of a municipality the valuations of the local assessors are subject to the action of boards of revision and review.

The legislative power is not hampered by constitutional restrictions, as is the case in many of our States, but is free to enact such legislation on the subject of taxation as it may see fit. It may be said, however, that any political party in control of the government usually maintains its supremacy by a majority so small as to make it averse to radical changes which arouse the opposition of property classes. Public opinion does not seem to be so great a factor in influencing legislation as in the United States. There appears to be a positive conservatism among the more influential classes, unfavorable to changes in taxation, which tends to relieve accumulated wealth in corporate forms from its proportionate share of public burdens.

REAL ESTATE.

For our purpose little need be said regarding local taxation of real estate in Ontario, as it does not differ in essential features from the practice in the United States, except that the absence of equalization as between municipalities conduces to uniformity in assessments. It is designed to tax this class of property at full uniform values, by estimate of local assessors, and no substantial distinction is made between the real property of corporations and individuals in methods of assessment, valuation, or rates of taxation.

Real property is broadly defined to include all the buildings, or things erected upon or affixed to the land, and all machinery or other things so fixed as to form part of the realty. This property is assessed by estimate, and, although supplemented by a restricted personal property and income tax, bears the greater burden of taxation.

Of a total assessed valuation of real and personal property and taxable income in 1899 of \$816,760,473, the sum of \$778,107,540 was real estate, \$29,387,162 personal property, and \$9,265,771 taxable income.

The law provides that municipal, local, or direct taxes, where no other express provision has been made in this respect, shall be levied equally upon the whole ratable property, real and personal, of the municipality, according to the assessed value of such property, and not upon one or more kinds of property in particular or in different proportions. While this sweeping general mandate seeks to subject all property not exempt to uniform taxation by reason of its inapplicability to certain forms of property and inadequate administration, it does not, in practice, work out according to the letter or spirit of the law.

It is provided that land shall be assessed in the municipality where it lies, and in the case of cities and towns in the ward in which it lies, and that the land so assessed shall include the land of incorporated companies, as well as other property. It is further provided that even the real estate of a railway company (the actual value of which depends upon its use in combination with other forms of property for railway purposes) shall, for the purpose of taxation, be considered as lands of a resident, and such land is subject to the same rule of assessment as other lands.

It is provided, except in the case of mineral lands, specially provided for, that real and personal property "shall be estimated at their actual cash value, as they would be appraised in payment of a just debt from a solvent debtor."

Mineral lands, with the buildings thereon, are estimated at the value of other lands in the neighborhood for agricultural purposes, but the income derived from mines or any mineral work is subject to taxation in the same manner as other income.

The absence of the rule of uniformity, and the general looseness of administration, are illustrated by a special provision (said to have been passed by the legislature at 3 o'clock in the morning) that the assessed value of vacant property in cities, towns, or villages shall be that at which sales can be freely made, and where no sales can be reasonably expected during the current year the assessors are directed, where such land exceeds 2 acres in cities and 10 acres in towns and villages, to value it as though it was held for farming or gardening purposes, with such percentage added thereto as the situation of the land reasonably calls for, the valuation being thus left to the discretion of the assessor.

PERSONAL PROPERTY.

Personal property is uniquely defined to include, for the purposes of taxation, "goods, chattels, interest on mortgages, dividends from bank stock, dividends on shares or stocks of other incorporated companies, money, notes, accounts and debts at their actual value, income, and all other property," except real property and property expressly exempted.

EXEMPTIONS.

Great liberality prevails in the exemption from taxation of various classes of property, which, together with a liberal administration of the assessment laws, practically relieves personal property from taxation.

The exemption list, in addition to property used for public, official, religious, educational, and charitable purposes, includes the following:

(1) Farm products held in store or warehouse by nonproducers thereof or in transitu.

(2) All horses, cattle, sheep, and swine owned or held by the owner or tenant of a farm, carrying on the general business of farming, and also all farming implements and vehicles, and all hay, grain, and other farm products on premises owned or occupied.

(3) The income of a farmer derived from his farm, and the income of merchants, mechanics, or other persons derived from capital liable to assessment.

(4) Personal property invested in mortgages upon lands or due on account of the sale of land, or invested in debentures of the Dominion or Province, or invested in any municipal corporation thereof, the interest on such securities being assessable, as hereafter shown.

(5) The shares in any incorporated or chartered bank doing business in the Province; but any interest or dividends on such stock held by residents of the Province is assessable.

(6) Stock in any incorporated company whose personal estate is liable to assessment in the Province.

(7) The stock in any railroad company or building society, and investments in companies loaning money on security of real estate; but the interest and dividends derived from shares in building societies or investments in loan companies are assessable.

(8) Stock in any toll road or the income derivable therefrom.

(9) So much of the personal property of any person as is equal to the just debts owed by him on account of such property, except debts secured by mortgage upon his real estate, or unpaid on account of purchase money therefor.

(10) The net personal property of any person under \$100 in value.

(11) The annual income of any person derived from his personal earnings to the amount of \$700 and the annual income of any person to the amount of \$400 from any source other than personal earnings; but no person is exempt for or in respect of income for a sum greater than \$700, however derived.

(12) Rental or other income from real estate, except interest on mortgages.

(13) Household effects, books, and wearing apparel.

(14) Steamboats, sailing vessels, tow barges, and tugs, but the income derived from such property is assessable.

It will thus be seen that a large portion of the personal property of the Province is exempt by law. It further appears that the greater portion of the personalty actually taxable is not, in fact, taxed, because of inadequate administration of assessment laws. The valuation of real property in 1899 was \$778,107,540; and that of personalty, \$29,387,162, or about 3½ per cent of that of real estate. Necessarily most of the personalty taxed is in the cities and towns, there being very little assessed in townships and villages. The assessed value of real estate in cities and towns in 1899 was \$301,377,869, and personalty \$24,656,215, or about 8 per cent of the realty. The assessed valuation of real estate in the townships and villages in 1899 was \$476,729,671, and that of personalty \$4,730,947, or about 1 per cent of the realty.

The values of the taxable personalty and the taxable personal income of the taxpayer are added together, and the aggregate constitutes the personal property liable to assessment, both being taxed at like rates.

PERMISSIVE TAX.

It is especially provided that the council of any municipality may pass by-laws for imposing an annual business tax, in respect of any class or classes of mercantile business, not to exceed 7½ per cent of the annual value of the premises in which the

business is carried on, such tax to be in lieu of taxes on personal property. For this purpose, the annual value of the premises in which the business is carried on is fixed at 7 per cent of the assessed real value. This permissive provision for a business tax has not, thus far, been used to any considerable extent.

There seems, however, to be a strong and positive sentiment among business classes in the city of Toronto, the principal city of the Province, in favor of the substitution of this business tax for personal property assessments, the latter being regarded by many as an embargo upon expansion and growth. It is alleged that the effect of personal property assessments is to place business institutions of that city at a disadvantage with those of other cities in the Dominion where the business tax is in vogue. Efforts have been made to substitute this business tax for personal property assessments, but have thus far failed; the argument used against its adoption being that a business tax was in favor of the wealthy classes and of accumulated wealth, and that it would result in a still greater burden upon real estate.

The liberal exemptions referred to, including the provision which exempts so much of the personal property of any person as equals the debts owed by him, together with the provision exempting from taxation the personal property of companies having the greater portion of their capital invested in real estate, practically destroy equality of assessment and taxation, and render the taxation of personal property ineffective.

Money deposited in banks, supposed to be assessable under the assessment act, is not in practice assessed, this fact being due to indifference and inadequate assessing machinery. It has been stated on good authority that there is now deposited in the banks of Ontario a total sum of \$118,000,000, and that of this sum not more than half a million is taxed.

It has been stated that the total assessed valuation of the city of Toronto is less than one-tenth of its actual total wealth. Toronto contains about one-fourth of the wealth of the Province.

TAXATION OF CORPORATIONS.

There is substantially no distinction between the taxation of corporations and individuals for local purposes, both classes being taxable on real and personal property and incomes in the municipalities where located.

Aside from the provincial tax upon companies, under the supplementary revenue act above set forth, substantially no attempt has been made to subject the property or income of corporations to methods of taxation different from those applied to individuals.

The crude method of measuring ability to pay taxes by real estate valuations is applied to corporations as to individuals, and substantially no attempt is made to tax corporations, domestic or public, in accordance with their ability to pay, as measured by the real value of their property or by their earning capacity.

"New methods" for "new forms of property" have, as yet, no place in the Ontario system of municipal taxation, and unit valuation of the property of corporations is practically unknown. The real property of corporations, within the broad definition referred to, is valued and assessed in the districts where it is located.

The personal property of incorporated companies, other than those referred to in the following paragraph, is assessed against the companies in the same manner as if they were unincorporated or partnerships—that is, at their usual places of business; or where a company has more than one place of business, each branch is assessed, so far as may be, in the locality where it is situated; but if this can not be done the company may elect at which place it shall be assessed for its whole personal property.

The personal property of a bank, or of a company which invests the whole or the principal part of its means in gas works, waterworks, plank or gravel roads, railway and tramroads, harbors, or other works, requiring the investment of the whole or the principal part of its means in real estate, is exempt from assessment; but the shareholders are assessable on the income derived from such companies. This provision is obviously made without regard to the equitable taxation of the classes of companies named therein, and permits great discrimination and escape of property from the rolls.

With respect to the "personal property of a bank," it is argued that it is the property of the bank's customers, and simply held by way of security; but other companies can escape taxation on all personalty by making a showing that the whole or the principal part of their capital is invested in real estate. For instance, telegraph and telephone companies contend that they have invested nearly all their means in real estate, and under the broad rules of valuation applicable to real estate largely escape taxation.

Nor does it appear from the results that the additional taxation of resident shareholders in such companies, upon the income derived (at property valuation rates), subjects the companies and their shareholders to adequate taxation as compared with the taxation of individuals generally.

Some effort is made by assessors, aided by a liberal construction of the law on the part of the courts, to extend the real estate valuation of such companies and make it include buildings, fixtures, and appurtenances in a broad sense, but such efforts are obviously inadequate, and do not attain anything like just taxation of such property. For instance, it has been held that the mains and pipes of a gas company laid under the public streets are assessable as appurtenant to the land owned by the company for the purpose of its business, but the practice seems to be to base assessment valuations of such property upon the "scrap" value of constituent elements rather than upon their value in operation.

The equitable taxation of these classes of property, including plants, equipments, buildings, franchises, etc., is obviously unattainable through local real estate valuations, and the inadequate taxation resulting is not compensated by the taxation of the income of resident shareholders at property valuation rates. The exemption of the personal property of such companies impliedly extends to franchise values, which constitute a very large part of the actual value of their property.

Every corporation whose dividends are taxable against its shareholders is required, at the written request of the assessor of any municipality in which there is any stockholder liable to assessment on dividends, to deliver a certified statement in writing, setting forth the names of shareholders resident in such municipality, the amount of stock held by each, the dividends, and the bonuses declared during the preceding year. These statements are not binding upon the assessors, who may, notwithstanding, assess such persons for such amounts of real and personal property as they believe to be just.

A corporation having income taxable under the law is taxed locally only upon so much of its income as is earned in the municipality where its principal office is located. The income earned outside of that municipality is taxable for provincial purposes under the supplementary revenue act.

RAILROADS.

A striking example of the crudity and inadequacy of the property tax of Ontario, without supplementary modern methods for the taxation of corporate forms of wealth, is found in the taxation of railroad property.

Aside from the provincial tax of \$5 per mile of track already referred to, the taxation of such property may briefly be designated as a property tax based upon real estate valuation, assessed by estimate of local assessors in the various taxing districts in which the roads are located.

The assessment act especially provides that the real estate of a railway company in any district shall be considered as land of a resident, although the company has not an office in the municipality, except in cases where the company ceases to exercise its corporate powers through insolvency or other cause. Railway lands are assessable in the various local taxing districts in which they are located at the same valuations placed upon other lands in the same localities, regardless of their value in combination with improvements and structures thereon for railroad purposes. It is only the land occupied by the road that is liable to assessment, and it is held that the assessment must be according to the average value of land in the locality.

Every railway company is required to make annual statements showing—

(1) The quantity of land occupied by the roadway and the actual value thereof according to the average value of land in the locality as rated on the assessment rolls of the previous year.

(2) Other real property in actual use and occupation by the company, and its value.

(3) The vacant land not in actual use by the company, and the value thereof, as if held for farming or gardening purposes.

It will thus be seen that the assessed valuation of railway property is what may be included as land. It does not include the superstructure, is not based upon cost, earning power, or actual value of elements in combination for railroad purposes, while the rolling stock and other personalty and franchise values are not included or taxed at all. The valuation in cities is especially inadequate, being made upon a "scrap iron" basis, so called. Up to a recent date this law required the property of railway and other transportation and transmission companies to be assessed in the separate wards in which it was located, and, under the construction placed thereon, required a valuation of the constituent elements included in the term "real estate"

at what they would be worth if separated and sold, regardless of their combined value in actual operation.

A recent amendment, however, permits the assessors to assess in one ward the entire property of a company in a municipality, at a valuation based upon its "fair value," the term "fair value" being interpreted to mean the value of its real estate together with what it would cost to erect poles, wires, etc., and the value of rails and other fixtures less their depreciation for wear and tear; or, in other words, permits them to assess the property of a company in the whole city on the same basis as they assess buildings in connection with the land of individuals.

Dividends on shares of stock in railway companies held by resident owners are assessable in the municipality where they reside.

We are unable to give the assessed values or taxes of railways in the Province, but a statement of the Grand Trunk Railway Company shows the assessed valuation of its property in the 397 townships, villages, towns, and cities of the Province of Ontario, through which it runs, for the year 1899 to be \$6,525,504.14, and the total amount of municipal taxes paid in that year, \$120,359.74. The amount of taxes paid to the Province was \$13,193.15, being \$5 per mile of track.

The taxes paid by the same company upon the gross earnings of its road in the State of Michigan for the year 1900 was substantially \$165,000.

TAX UPON INCOMES.

In this Province income has always been recognized as a proper subject for state and municipal taxation, and has formed a part of the assessment law for a great many years. The income tax apparently meets with general approval, and is regarded as a just and practical tax, although it does not appear to be vigorously and effectively administered.

The statutes give certain rights (municipal, provincial, and federal), to the man who pays income tax. The right of "manhood suffrage," or the right to vote at municipal elections, is given only to those who appear on the assessment roll of the municipality, upon which the voters' list is based, as freeholders, tenants, income taxpayers, or farmers' sons.

We have seen that "personal estate" for purposes of taxation includes interest on mortgages, dividends on bank stock, shares in other incorporated companies, and income. In levying municipal, local, or direct taxes generally upon the rateable property, real and personal, of the municipality or other locality according to the assessed value of such property, income, subject to certain exemptions, is included as assessable property and taxed at uniform rates with other property.

As we have seen, the annual income of any person, derived from his personal earnings, to the amount of \$700, and the annual income to the amount of \$400 from any other sources, is exempt, the combined exemption in any case, however, not to exceed \$700. It is made a part of the duty of tax assessors to put the names of taxpayers upon the rolls as voters, and it is provided that where any person derives from some trade, office, calling, or profession an income which is entitled by law to exemption from assessment, he is not bound to avail himself of such right, but may require his name to be entered on the assessment roll for such income for the purpose of being entitled to vote at elections for municipal councils; and in such case the income is liable to taxation like other assessable income or property.

The personal and official income of the Governor-General of the Dominion of Canada, the official income of the Lieutenant-Governor of the Province, and the pay of army and navy officers and privates are exempt, but the salaries or incomes of persons holding public offices generally are assessable. The income of farmers derived from their farms, and of merchants, mechanics, or others derived from capital liable to assessment, is exempt.

The assessment for income is made on the ratepayer's income for the year preceding the assessment. The taxable income of a person is added to the valuation of other personal property, and the whole constitutes his personal property liable to assessment. The tax imposed upon business income is levied upon the balance of gain over loss, if any.

The income from mortgages, shares of stock, and other securities is taxable as so much property.

The income of companies not derived from capital assessed is taxable, subject to the provisions of the supplementary revenue act.

Income is assessed by local assessors by estimate, the assessors being guided by the statements of persons taxed and such other information as they may acquire. If the assessor questions the statement of a taxpayer as to his income, he may call for a statement in writing not under oath. The taxpayer may appeal from the

arbitrary assessment of the assessors to a court of revision composed of official arbitrators, one of which is appointed by the government, one by the mayor of the city, and one by the municipal council. From this board appeal lies to the senior county judge, whose decision is final.

The personal income tax by reason of the exemptions and indifferent administration, is substantially limited to the cities and towns. In 1899 the total taxable income of the Province was \$9,265,771, apportioned as follows:

Cities	\$7,307,948
Towns	1,492,136
Villages	256,622
Townships	209,066

The average rate imposed for all municipal purposes was 15.3 mills on the dollar. The taxable income in the city of Toronto for 1901 was \$4,892,182, and the rate 19 mills on the dollar.

The total number of income assessments in the city of Toronto for the year 1900 was 4,527, of which 463 were of \$2,000 or over, 519 over \$1,000 and under \$2,000, 816 over 500 and under \$1,000, and 2,729 \$500 and under.

Among the larger assessments for 1901 may be noted an investment company, \$24,000; a mortgage association, \$47,569; a life assurance company \$100,000 (for income earned within the municipality); another for \$60,000; a trustee of a single estate, \$110,500; partnerships, \$15,400, \$32,300, \$49,600, respectively; the Independent Order of Foresters, \$84,000; a trust company, \$33,500, and another \$20,000; the Bradstreet Company, \$7,000; individual assessments, \$19,300, \$34,300, \$100,000, \$13,283, \$14,645, \$15,000, \$20,332; the whole list ranging from these sums down to \$2,000, and including both men and women.

Tax officials and citizens generally commend the income tax of Ontario as correct in principle and successful in practice. It is generally represented that this tax might easily yield a very much larger revenue by more vigorous and progressive administrative methods. It seems, under present administrative methods, to be largely confined to salaries and other fixed incomes, and those easily and definitely ascertainable by the assessor. It will be observed that the rates of taxation on income are comparatively low, being the same as on full property valuations.

Many prominent business men and tax officials favor the abolition of personal assessments (which, as such assessments are now made, would not involve a serious loss of revenue), and the substitution of an enlarged and extended income tax with improved administrative methods. Several of the leading merchants of the larger cities of the Province, before the assessment commission a few months ago, expressed themselves as being entirely in accord with the business tax in lieu of personal property assessments, and advocated, in addition to the business tax, the assessment of income derived from their business, and more vigorous and aggressive administration of the personal income tax.

PROVINCE OF QUEBEC.

In the Province of Quebec there is not only an entire separation of state and municipal taxation, but each municipality of importance is practically permitted to adopt its own method of raising its local revenues, without regard to uniformity with other municipalities.

The provincial revenues are derived from Dominion subsidies, lands and forests, certain stamps and fees, licenses, direct taxes on commercial corporations, duties on successions, and minor sources.

There is a general law for the taxation of parishes or country districts, which embodies a simple property tax for each, while for the municipalities containing towns or cities, special acts or charters are passed by the provincial legislature, giving each the power to assess and levy taxes independently, through such methods as it may adopt. Hence, there is substantially no uniformity in the methods of taxation in such municipalities for local purposes. The system in Quebec is unlike the one in Montreal, and that, in turn, has features different from the systems of other cities.

PROVINCIAL TAXES.

The Province has adopted an elaborate and extensive system of direct license taxes or duties on the sale of liquors, and on hotels, restaurants, and shops; and fixed taxes on auctioneers, pawnbrokers, and various kinds of business, from which sources it derives an annual revenue of about \$600,000.

TAX ON COMMERCIAL CORPORATIONS.

Annual taxes are imposed upon commercial corporations and companies as follows:
Upon every incorporated company carrying on any labor, trade, or business within the Province of Quebec:

(a) One-tenth of 1 per cent upon the amount of the paid-up capital to \$1,000,000, inclusive, and \$25 for each \$100,000 or fraction thereof for all sums over \$1,000,000.

(b) An additional tax of \$50 for each place of business, factory, or workshop in the cities of Montreal and Quebec, and of \$20 for each place of business, factory, or workshop in any other place.

(c) The lieutenant-governor in council may allow these companies such reduction of taxes as he may deem just, in proportion to the nature and importance of their operations in the Province, when their principal place of business is beyond the limits of the Province, or when, their chief office being within the limits of the Province, they employ therein only part of their paid-up capital, and the larger portion of capital is employed without the Province; but the tax must be at least one-tenth of 1 per cent on the amount of the capital employed in the Province.

The amount realized from this source in 1900 was \$71,682.30.

BANKS.

A tax is levied on banks doing business in the Province at the rate of \$100 for every \$100,000 or fraction thereof of the paid-up capital up to \$1,000,000, inclusive; \$50 for each \$100,000 or fraction thereof from \$1,000,000 to \$3,000,000; \$25 for each \$100,000 or fraction thereof from \$3,000,000 to \$6,000,000, and \$15 for each \$100,000 or portion thereof over \$6,000,000, except on banks organized outside the Province having branches or agencies in the Province, which banks pay a principal tax of one-tenth of 1 per cent upon the amount of paid-up capital if not over \$1,000,000, of \$1,000 if the paid-up capital exceeds \$1,000,000 but does not exceed \$2,000,000, and of \$1,500 if the paid-up capital exceeds \$2,000,000.

These banks also pay an additional tax of \$100 for each office or place of business in the cities of Montreal and Quebec, and of \$20 for each office or place of business in any other place.

The amount of such taxes paid by banks in 1900 was as follows:

Montreal banks.....	\$25,346.67
Quebec banks.....	6,470.00
St. Francis banks.....	1,470.00
Tenuscoute banks.....	900.00
St. Hyacinthe banks.....	500.00
Iberville banks.....	340.00
Total.....	35,026.67

INSURANCE COMPANIES.

Every life insurance company is required to pay a tax of 1 per cent, and every other insurance company, except mutual and marine companies, a tax of two-thirds of 1 per cent, calculated in both instances upon the gross amount of premiums for insurance effected or renewed in the Province during the preceding year, the tax in no case, however, to be less than \$250.

Every person, firm, or company engaged in carrying on the business of marine insurance as principal, agent, or broker pays a tax of \$250.

A tax of 3 per cent is levied on the gross premiums on fire insurance effected on property in the Province of Quebec with companies not having representatives or agents therein, and not paying any tax under other provisions.

The amount of insurance taxes in 1900 was \$49,266.06.

LOAN COMPANIES.

(a) A loan company with a fixed capital exceeding \$500,000 pays a tax of \$400, and an additional sum of \$50 for each \$1,000,000 or fraction thereof of paid-up capital over \$1,000,000.

If the fixed capital exceeds \$400,000 but does not exceed \$500,000, the tax is \$300; if it exceeds \$300,000 but not \$400,000, \$250; if it exceeds \$200,000 but does not exceed \$300,000, \$200; if it exceeds \$100,000 but not \$200,000, \$150; if the capital is \$100,000 or less, one-tenth of 1 per cent upon the amount of capital.

(b) A company without a fixed capital pays \$100.

(c) There is an additional tax of \$100 for each office or place of business in Montreal and Quebec, and \$50 for each office in every other place, when the fixed capital exceeds \$100,000. When the fixed capital is \$100,000 or less, the additional tax is \$50 in Montreal and Quebec and \$25 in every other place.

The amount of the tax from loan companies in 1900 was \$4,013.30.

NAVIGATION COMPANIES.

Navigation companies pay one-tenth of 1 per cent upon the amount of paid-up capital up to \$500,000, and \$50 for every \$100,000 or fraction above \$500,000; and an additional tax of \$50 for the most important office in each of the cities of Montreal and Quebec and \$20 for the most important office in every other place.

The amount of this tax in 1900 was \$2,659.86.

TELEGRAPH COMPANIES.

Every telegraph company and every other company working a telegraph line for the use of the public pays a tax of one-tenth of 1 per cent upon the amount of its paid-up capital stock up to \$50,000, and every company with a capital stock which exceeds \$50,000 pays a tax of \$2,000.

The amount realized from this source in 1900 was only \$233.

TELEPHONE COMPANIES.

Telephone companies are required to pay one-tenth of 1 per cent upon the amount of paid-up capital if it is \$50,000 or less; \$250 if the paid-up capital exceeds \$50,000 but does not exceed \$100,000; \$500 if it exceeds \$100,000 but does not exceed \$200,000; \$1,000 if it exceeds \$200,000 but does not exceed \$300,000, and \$1,500 if it exceeds \$300,000.

The amount paid by these companies in 1900 was \$1,609.56.

CITY PASSENGER RAILWAY COMPANIES.

City passenger railway companies pay a tax of \$50 for each mile of single track of railway in operation, and \$100 for each mile of double track.

The amount of this tax in 1900 was \$4,646, \$4,226 of which was from railway mileage in Montreal.

RAILWAY COMPANIES.

Every railway company working a railway or part of a railway in the Province, and every railway company having received or receiving subsidies from the government of the Province, pays a tax of \$10 for each mile of railway in operation; all other railway companies pay \$5 for each mile of railway in operation.

The amount paid by railway companies in 1900 was \$18,885.55.

ADMINISTRATIVE PROVISIONS.

The total amount of provincial taxes imposed upon any commercial corporation or company is payable annually, upon a fixed date, to the collector of provincial revenue in the revenue district in which it has its head office.

Every such corporation or company is required, on or before a fixed date in each year, without notice or demand, to forward in duplicate to the Provincial Treasurer a detailed sworn statement setting forth, in so far as necessary, in view of the collection of such taxes as are imposed upon each class of companies, its name, nature, amount of paid-up capital, number and location of all offices, agencies, stations, factories, and workshops, and in case of railways, the number of miles in operation and other special information according as its class may require.

If the Provincial Treasurer, in the case of any such corporation or company, desires further information as to its condition, he may require a further sworn statement to be furnished within a certain time under a penalty of \$500 for default.

The clerks or secretary-treasurers of municipal corporations are required to make annual reports to the Provincial Treasurers setting forth the names of all commercial corporations and companies subject to these taxes, established or doing business within their respective municipalities, specifying the number of offices, factories, or workshops of each. A penalty is prescribed for default.

These classes of companies are also subject to civic taxes, business taxes, and water rates for municipal purposes, as hereinafter set forth.

SUCCESSION DUTIES.

A graduated tax is imposed by the Province on all property transmitted "owing to death," calculated upon the value of the property. From this tax the sum of \$270,865.58 was realized in 1900.

CITY OF QUEBEC.

The system of taxation in vogue in the municipality of Quebec for raising local revenue is simple and unique. Taxes are not levied upon the real value of property at all, but are based entirely upon rental values, Quebec being the only city getting its assessment tax from the rental value instead of the capital value of property.

CIVIC TAX.

The principal taxes levied consist of a civic tax, a business tax, and water rates.

A by-law to "fix, determine, and impose" the tax or assessment of "unmovable property" is adopted for each civic year.

This tax is limited to 20 per cent of the rental value, but the rate actually levied is $17\frac{1}{2}$ per cent of the amount of the annual rental value of the assessable immovable property of the city. The assessment upon vacant lots is at the rate of $17\frac{1}{2}$ per cent of the amount of the annual interest on the value thereof.

These values are determined by the local assessors, and this tax of $17\frac{1}{2}$ per cent is equally apportioned, upon the assessment roll, between the proprietor and the tenant of the property, when owned and occupied by different persons, although either may pay the tax.

The amount of taxes levied for the civic year 1899-1900 was \$228,989.71.

BUSINESS TAX.

There is also a tax of $12\frac{1}{2}$ per cent imposed upon the rental value of all property used or occupied for business purposes, which in said civic year amounted to \$51,778.71. This tax takes the place of a tax upon personal property. There is no tax upon notes, mortgages, or other securities.

WATER RATES.

There is a further tax of $12\frac{1}{2}$ per cent on the rental values of all properties having water, and 3 per cent on properties not having water, with certain fixed charges for special purposes, such as \$2 each for closets, and \$1 each for animals. This tax yielded in the year 1899-1900 the sum of \$214,142.67.

PERSONAL TAXES.

Certain personal, fixed, and annual duties or taxes are imposed on certain classes of persons, firms, and corporations, such as wholesale and retail merchants and dealers, auctioneers, brokers, banks, insurance companies, brewers, innkeepers, etc., and there are certain other fixed taxes on horses and vehicles.

The yield of the personal tax in the year 1899-1900 was \$80,848.25.

At the end of every year judgment is taken against all parties who have not paid their taxes, and the bailiff's department is charged with the duty of collecting all arrears of taxes, and directed to sell movable and real property of any taxpayer who fails to pay such taxes within two years from the time they are due.

CITY OF MONTREAL.

Under the charter for Montreal, that municipality imposes for local purposes a general assessment of 1 per cent per annum on all "taxable immovables" not exempt, viz:

(a) On all lands, buildings erected thereon, machinery, and other property so fixed or related to any building or land as to form a part thereof.

(b) On all pipes, poles, wires, rails, tunnels, and other constructions and apparatus of every nature used in connection with the generation or distribution of power, light, heat, water, electricity, or for traction purposes, whether any of the same be constructed or placed upon, over, or under property, streets, highways, or elsewhere within the limits of the city.

Such assessment of 1 per cent for general purposes is based upon the assessed value of the property, and is made by estimate of assessors.

There is also imposed, upon like valuations, a tax of one-fourth of 1 per cent for school purposes.

The net assessed value of this class of property in Montreal for 1900 was \$148,095,202, exclusive of exemptions amounting to \$37,133,275. The taxes were as follows:

1 per cent assessment.....	\$1,480,952.02
$\frac{1}{4}$ per cent school tax	\$70,238.00
Total	1,551,190.02

In respect to this property tax there is no distinction between the property of individuals and that of domestic or public corporations.

There is no distinct tax upon personal property, either tangible or intangible.

Notes, mortgages, and other securities are not taxed.

WATER RATES

The water rates are $7\frac{1}{2}$ per cent upon the rental value of residential property, and practically 4 per cent upon that of business property, besides certain prescribed miscellaneous meter and special rates. The total amount collectible for water rates in 1900 was \$776,997.38.

TAXES BASED ON RENTAL.

An annual tax of $7\frac{1}{2}$ per cent upon the assessed rental value of the premises in which business is carried on, called the "business tax," is imposed upon all "trades, manufactures, financial or commercial institutions, premises occupied as warehouses or storehouses, occupations, arts, professions or means of profit or livelihood" carried on by any persons or corporations; all persons or corporations carrying on such named trades or occupations being responsible directly for the payment of the tax.

Special progressive rates of business taxes are imposed upon certain classes of business, such as keepers of clubs, inns, hotels, restaurants or saloons, distillers, and brewers.

TAXATION OF CAPITAL.

Banks.—An annual tax is levied upon every bank doing business in Montreal, as follows:

When the paid-up capital of such bank is \$1,000,000 or less.....	\$400
When the paid-up capital is more than \$1,000,000, but does not exceed \$2,000,000	500
When the paid-up capital is above \$2,000,000.....	600

Corporations enjoying franchises.—An annual special tax of one-tenth of 1 per cent is levied upon the paid-up capital stock of any company enjoying any franchise in or under any streets within the limits of the city.

PERSONAL TAXES.

An annual special tax of \$200 is imposed and levied on every life, accident, and guarantee insurance company doing business in the city, and of \$100 on every marine insurance company.

An annual special tax of \$400 is levied on every fire insurance company.

An annual special tax of \$50 is levied on stockbrokers, financial agents, money lenders, and real estate agents.

An annual special tax is imposed upon the owners of pleasure vehicles kept and used in the city at the following rates, viz:

(1) For every four-wheeled closed carriage drawn by 2 horses.....	\$15. 00
(2) For every four-wheeled half-covered carriage drawn by 2 horses.....	12. 00
(3) For every four-wheeled closed or half-covered carriage drawn by 1 horse.....	10. 00
(4) For every double dennet	8. 00
(5) For every gig, buggy, or other vehicle mounted on springs and drawn by 1 horse	6. 00
(6) For every wagon or other vehicle not above specified for draft by 2 or more horses	8. 00
(7) For every two-wheeled vehicle or carriage kept for hire by livery-stable keepers.....	2. 00
(8) For every four-wheeled vehicle or carriage kept for hire by livery-stable keepers.....	4. 00

Ratepayers having 2 or more pleasure vehicles are not liable to pay the tax on more vehicles than they have horses to drive the same, the highest description of values being assessed in preference to those of lesser value.

Owners of horses in the city are required to pay special taxes as follows:

- | | |
|---|--------|
| (1) For every working or hire horse | \$2.50 |
| (Not applicable to carters or hackmen who pay special license.) | |
| (2) For every pleasure horse | 6.00 |

The total amount of business duties and personal taxes realized from the above sources in 1900 was \$287,266.71.

LICENSES.

Licenses payable to the city treasurer are required of various classes of persons and business, such as the following:

Auctioneers.....	\$200.00
Every clerk employed by such auctioneers to cry or sell by auction	40.00
Pawnbrokers	200.00
Proprietors or managers, or agents, of circuses, menageries, or travelling exhibitions and shows.....	200.00
Detective agencies.....	100.00
Persons opening temporarily a store to sell therein any bankrupt stock or other effects.....	100.00
Employment offices (for gain).....	50.00
Public laundries.....	50.00
Private hospitals.....	50.00
Butcher shops.....	50.00
Peddlers.....	50.00
Museums, concert halls, dancing halls, halls where theatrical performances are held, and places of amusement whatsoever.....	50.00
Skating rinks.....	50.00
Junk and second-hand dealers.....	50.00
Vehicles bringing stone from outside municipalities.....	25.00
Milkmen.....	5.00
Bakers.....	5.00
Agents and solicitors for stages, cars, vessels, and places of public entertainment.....	10.00
Book agents.....	10.00
Canvassers.....	10.00
Itinerant musicians, organ grinders, and players of other instruments in the streets and public places of the city.....	50.00
Bill posters.....	25.00
Chimney sweeps.....	5.00
Every constable or guardian of peace not being under the control of the government nor of the municipality.....	5.00
Public vendors, itinerant traders, hucksters, and hawkers on foot.....	10.00
Public vendors, itinerant traders, hucksters, and hawkers with hand vehicle	30.00
Public vendors, itinerant traders, hucksters, and hawkers with vehicle drawn by a horse	50.00

The amount received from licenses in 1900 was \$121,459.25.

STREET RAILWAYS.

Street railways pay a special percentage tax on gross earnings at the following rates, viz:

4 per cent on earnings not exceeding \$1,000,000.
6 per cent on excess over \$1,000,000 to \$1,500,000.
8 per cent on excess over \$1,500,000 to \$2,000,000.
10 per cent on excess over \$2,000,000 to \$2,500,000.
12 per cent on excess over \$2,500,000 to \$3,000,000.
15 per cent on earnings in excess of \$3,000,000.

Each company is required to render quarterly a true and just account and statement in writing of gross earnings, and to allow proper inspection of books of account, records, etc., to be accompanied by a statutory declaration as to correctness.

The earnings and taxes on railways in Montreal for 1900 were as follows:

4 per cent on \$1,000,000.....	\$40,000
6 per cent on \$500,000.....	30,000
8 per cent on \$250,550.03.....	20,004
Total	90,004

The real estate of such companies occupied for offices, machinery, etc., is assessed and taxed as other real estate.

There is no distinct property tax upon personality, tangible or intangible; no taxation of notes, mortgages, or other securities, or shares of stock in corporations, and no personal-income tax. These classes of property are reached only through the business tax upon the rental value of the real property occupied, as already set forth.

The result of the system of taxation in Montreal seems to be to impose a disproportionate and constantly increasing part of the burden of municipal taxation on real estate, and the vigorous efforts of real estate owners are directed toward the adoption of a system that will impose greater taxes upon personal property than those obtained through the business tax on rental values.

On the other hand, the business tax is regarded with great favor on the part of business men, who generally believe it to be conducive to business development.

The following expression of views furnished the writer by Mr. William Robb, treasurer of the city of Montreal, who is a thorough student of the subject of taxation, reflects to some extent the principles and ideas underlying the system of taxation in that city:

To arrive at a just basis of municipal taxation it is necessary to determine the objects for whose benefit the debt was incurred, or for which an expenditure in some other form is entailed upon the city, to meet the cost of which the taxes are levied.

First, then, as to the debt itself. This, as a general rule, may be briefly stated as follows: First, for water supply; second, for main drainage; third, for formation of streets; fourth, for municipal buildings, etc.; fifth, for parks; sixth for aid to railway.

The first four of these are incurred in the interest of the real estate of a city which should consequently bear the annual cost thereof.

No. 5 is an outlay in the interest of the citizens, individually, the annual cost of which might be raised by a "poll tax," were it not for the relative inequality with which it would fall; those living at a distance, and unable to keep horses, being practically excluded from its benefits. To pay it by an assessment on real estate is but to modify this inequality, and until facilities are afforded to every quarter of a city to avail of its privileges at a uniformly low rate, there would be an element of injustice in so raising it; nevertheless there seems to be no option but to merge it also in the general assessment.

No. 6 is an outlay for the benefit of business in particular, but its tendency is to enhance the value of real estate generally, and as business should, in my opinion, be subject to as little taxation as possible, this, too, will naturally fall to be collected through realty.

Secondly, as to what other expense is entailed, or what value, other than the payment of the interest on the debt incurred in its behalf, is rendered as an equivalent for the taxes raised from real estate.

Under this head may be classed the following: First, administration of roads; second, maintenance of police; third, maintenance of fire brigade; fourth, street lamps.

It may be objected that the three latter are as much in the interest of "personal" as of "real estate," but the objections to raising revenue through assessment of personal are so manifest, and the inequality of it, even if desirable or practicable, would be so great that I regard it as inadmissible. Moreover, experience has shown the inevitable tendency of taxation, however levied, to ultimately diffuse itself over all the area affected; and the more concrete the form in which it is imposed the more surely and readily does it do so.

ASSESSMENT OF BANK STOCK.

I am well aware of the strong feeling that exists everywhere, in municipal councils, to tax such personality as bank stock, mortgages, etc., but I think due consideration would convince of the un wisdom of doing so unless all other stocks—or more correctly to state it, all other capital—were taxed.

Bank stock is simply the representative, the receipt for, so much capital invested in that form, and is in no way different from railway, gas, telegraph, or any other industrial stock, and should not be singled out from among these for special taxation. Nay, if it were determined to tax stocks generally, and any exception were to be made, that exception should be in favor of that portion of the capital of a country which is invested in what is available for its general business, and that is precisely the mission of money invested in bank stock. To discourage such investments would be suicidal.

ASSESSMENT OF MORTGAGES.

The assessment of mortgages would not only be unfair for the reasons given above, but would lead to endless complications, not to say absurdities, for instance—

A and B each own \$100,000 of bank stock which, if assessed at one-fourth per cent would yield \$500.

B, however, resolves to change his investment into a manufacturing interest, for which purpose he borrows A's \$100,000 and invests it, together with his own, in a factory giving A a mortgage thereon to secure his \$100,000.

The assessment would be: A's mortgage, \$100,000; B's real estate, \$200,000, yielding an aggregate tax of \$750. Is it not this double taxation to the extent of \$100,000?

Or, to put it in another light: If the \$100,000 which A has in the factory be assessed separately from and over above the cost of the building, why should not the \$100,000 which B himself put in it be separately assessed also? The building is as really and truly the representative of and security for his \$100,000 as it is for that of A, although he does not need the evidence of a mortgage deed because the property itself is registered in his name.

Or, to show it still more clearly, suppose A and B each advance \$100,000 to C, who erects therewith a factory, giving A and B, respectively, mortgages for \$100,000 each. Now we have a factory standing in C's name, assessed at \$200,000, and A and B a mortgage of \$100,000 each. Would not this be double taxation of the whole?

If it should be claimed that the difficulty could be got over by deducting from real estate valuations the amount of any existing mortgages, what would be done in a case like the above? Would the real estate be ignored altogether? And if it would be an absurdity in the whole would it not be equally untenable in the part? The fact is, these are representatives of value, and a system which should tax the representation and the thing represented is double taxation. Moreover, any tax on money will increase its cost and react on trade and commerce, while its freedom from impost will attract capital and foster home industries.

The revenue of a city should be raised by an assessment on something which every one possesses or uses, and in the ratio of his possession.

If every citizen owned the property he used for his own purposes, and only so much, an assessment on the realty of a city would be an ideal form in which to raise its revenue.

But while every inhabitant is not an "owner" all are "occupants" and in paying the assessment on what he occupies for residential or business purposes, or for both, over and above his rent, or included in said rent, he contributes, pro rata with all others, to the civic revenue.

I am well aware that the weak point in this is the difficulty presented by cases of vacancy. The owner of more property than what he himself occupies would appear to be placed at a disadvantage in cases where some of his houses or stores were without tenants. The difficulty is insuperable, but

attaches to every form of taxation, and must be left to adjust itself under the natural law of supply and demand.

If the revenue were raised by taxation of "income" the passing of the usual dividend in any concern which furnished the means of living to others, would leave them in an equal plight and for which it is clear no exceptional legislation could provoke a remedy.

The principle seems to be well established that the more concrete the method in which municipal taxation is levied, the more certainly does it diffuse itself, and hence the levying of it on real estate is universally recognized as the best.

Akin to the difficulties surrounding the object of taxation are those which meet us in determining the mode of levying on it.

The first principle which naturally presents itself is that every foot of land within the limits of a city should contribute pro rata to the expenditure entailed therein; but we are immediately confronted with the objection that the expenditure is not spread over the whole in equal ratio, and, therefore, such a method would be unjust.

The next in order is that every lot in the city should contribute pro rata with its frontage, and this method has many arguments in its favor, especially as the benefits enjoyed and the expenditure required by a lot of any given frontage is the same, whether that lot be 50 or 100 feet in depth; but when we recollect that the nature of that expenditure is vastly more valuable in the centers of trade and residence than it is in the outlying districts, it is manifest that a uniform rate would be unjust, and any system which would call for different rates for the different localities of a city must be dismissed.

But it is equally obvious that the value of all lots of land within a city is regulated by their proximity to these same centers, and consequently a system which imposes a uniform rate upon all, based upon the actual value of each, seems to be open to fewer objections than any other method.

These views are obviously based upon the assumption that the direct benefits from taxation accrue largely to real estate, and that it should therefore bear the burden of municipal taxation; and upon the further assumption that the primary object of the system is to encourage business by relieving it so far as possible from the embargo of special taxation.



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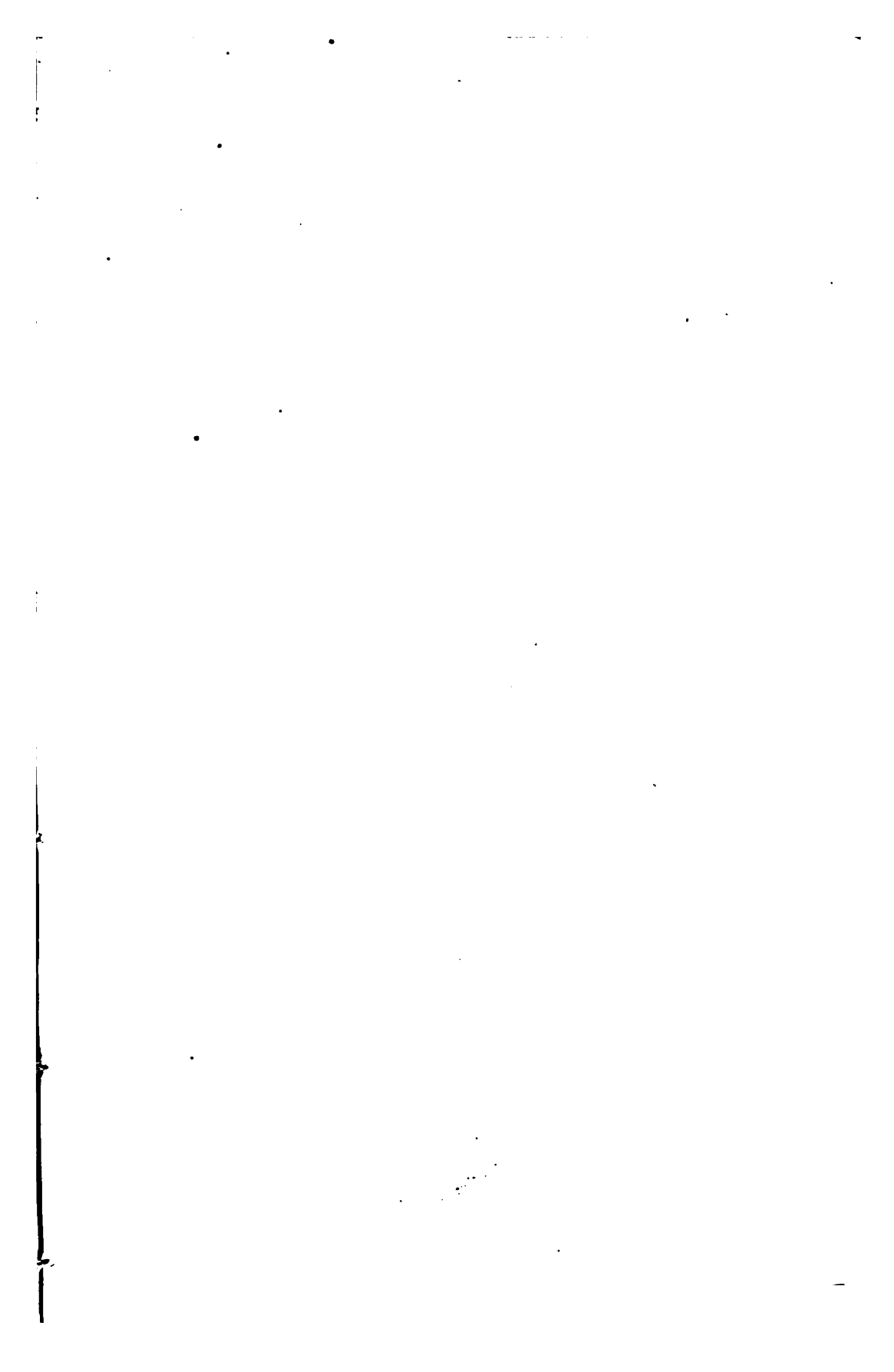
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